UNITED STATES DISTRICT COURT
WESTERN DISTRICT OF TEXAS
WACO DIVISION

CUTTING EDGE VISION, L.L.C.	)	
	)	
Plaintiff	)	
	)	
vs.	)	Case No. 6:24-cv-270-AM-DTG
	)	
T-MOBILE US, Inc., and T-MOBILE USA, Inc.	)	
	)	
Defendants.	)	

EXPERT DECLARATION OF DAVID W. HUGHES

1. I, David W. Hughes, submit this Expert Declaration in the matter of Cutting Edge Vision, L.L.C. ("CEV") versus T-Mobile US, Inc., and T-Mobile USA, Inc. (individually and collectively "T-Mobile"), Case No. 6:24-cv-270-AM-DTG.

2. As at least part of this action, I understand that T-Mobile has disputed the meanings of several words and phrases that appear in certain asserted claims of U.S. Patent No. 10,063,761 entitled "Automatic Upload Of Pictures From A Camera" ("the '761 Patent"); and in certain asserted claims of U.S. Patent No. 11,153,472 entitled "Automatic Upload Of Pictures From A Camera" ("the '472 Patent").

3. I further understand that Dr. Andrew Wolfe has submitted a Declaration ("Wolfe Declaration") in support of T-Mobile's position as regards the meaning of one of the words and phrases identified by T-Mobile and that appear in certain claims of the '761 and the '472 Patents-in-suit.

4. This Expert Declaration contains my initial opinions concerning the proper meanings of several words and phrases disputed by T-Mobile.

Qualifications

5. I hold the degrees Bachelor of Electrical Engineering (1975), Master of Science in Electrical Engineering (1976), and Doctor of Philosophy in Electrical Engineering (1980) from the Georgia Institute of Technology ("Georgia Tech"). I received the Sigma Xi Award for the Outstanding Dissertation in Engineering at Georgia Tech. I have an educational background and work experience in various aspects of electrical engineering, including that germane to the cellular telephones and electronic cameras at issue in the present litigation. I have been employed by, or have consulted with, the electronics industry since the late 1970s.

6. In 1980, I joined Motorola as a semiconductor engineer in the Semiconductor

Products Sector. I worked on semiconductor processing and electronic circuit design issues. I also participated as a negotiation assistant in patent licensing meetings, and as an in-house consultant supporting patent and product litigation. I received the Motorola Engineering Achievement Award once and the Motorola Award of Excellence three times.

7. In 1985, I accepted a position at the Georgia Tech Research Institute performing research and development in the area of semiconductor electronics. In 1991, I co-founded an engineering consulting and investment banking firm specializing in proprietary technologies. My work at this venture involved assisting clients with creating, protecting, and analyzing their technology assets. In this role, I worked extensively with patents and other forms of intellectual property. Since 1995, I have worked as an independent consultant. My curriculum vitae is included as Exhibit 1.

8. I have published more than fifty technical articles, and written two electrical engineering textbook sections, two sections for respective books about American speleology, and one chapter in a book about aerospace history. I have also authored five complete books, and have two other books in progress. I am a named inventor on 13 United States patents and one foreign patent.

9. The bulk of my current work relates to technologies in the field of electrical engineering and the associated intellectual property issues.

10. I have served as an expert in several patent litigation actions.

Compensation

11. I am being compensated for my study and analysis activities in this matter at my current standard rate of $425 per hour, plus expenses. I have no known financial interest in either party and my compensation in this matter is not dependent upon the outcome of the present

proceeding.

Data Considered

12. The data or other information that I considered in forming the opinions that I may express in this phase of the action include those detailed in the listing that follows:

a. U.S. Patent No. 10,063,761 entitled "Automatic Upload Of Pictures From A Camera"; filed November 24, 2015; issued August 28, 2018.

b. U.S. Patent No. 11,153,472 entitled "Automatic Upload Of Pictures From A Camera"; filed October 25, 2019; issued October 19, 2021.

c. Portions of the prosecution history of U.S. Application No. 15/188,736 (that matured into U.S. Patent No. 9,936,116).

d. Prosecution history of U.S. Application No. 14/950,370 (that matured in U.S. Patent No. 10,063,761).

e. Prosecution history of U.S. Application No. 16/663,742 (that matured in U.S. Patent No. 11,153,472).

f. Expert Declaration Of David W. Hughes, *Cutting Edge Vision, L.L.C. v. TCL Technology Group Corporation, et al.*, Case No. 6:22-CV-00285-ADA (W.D. TX, December 12, 2022).

g. Claim Construction Order, *True Chemical Solutions, L.L.C. vs. Performance Chemical Company*, Western District Of Texas, Midland Division, MO-18-CV-00078-ADA, September 25, 2019.

h. Claim Construction Order, *Flypsi, Inc. vs. Dialpad, Inc.*, Western District Of Texas, Waco Division, 6:21-CV-00642-ADA, August 22, 2022.

i. Claim Construction Order, *Barkan Wireless IP Holdings, L.P. v. Samsung Elecs.*

Co., Case No. 2:18-CV-28-JRG (E.D. TX, February 7, 2019).

j. Claim Construction Order, *Cutting Edge Vision, L.L.C. v. TCL Technology Group Corporation, et al.*, Case No. 6:22-CV-00285-ADA (W.D. TX, February 2, 2023).

k. Steven M. Kaplan, *Wiley Electrical And Electronics Engineering Dictionary*, John Wiley & Sons, Hoboken, New Jersey, 2004.

l. Rudolf F. Graf, *Modern Dictionary Of Electronics*, Seventh Edition, Butterworth-Heinemann, Woburn, Massachusetts, 1999.

m. Michael Agnes, *Webster's New World College Dictionary*, Fourth Edition, Wiley Publishing, Cleveland, Ohio, 2004.

n. Bryan Pfaffenberger, *Webster's New World Computer Dictionary*, Ninth Edition, Hungry Minds, New York, New York, 2001.

o. Jane Radatz, *The IEEE Standard Dictionary Of Electrical And Electronics Terms*, Sixth Edition, 1996.

p. Defendants' Opening Claim Construction Brief, February 27, 2025.

q. Expert Declaration Of Dr. Andrew Wolfe In Support Of Defendants' Opening Claim Construction Brief, February 27, 2025.

r. Deposition transcript of Dr. Andrew Wolfe taken on March 14, 2025 ("the Wolfe Deposition").

13. If I am asked to submit a document in response to an expert report, a declaration, or a pleading offered by T-Mobile, there may be additional data considered.

The Patents-In-Suit

14. The '761 and '472 Patents are part of a portfolio of patents that all share the same substantive disclosure, which was originally filed on October 17, 2005. Accordingly, I have

applied the date of the original application (October 17, 2005) in determining the appropriate date for the person of ordinary skill in the art ("POSITA"), as that term is used and described below.

15. For convenience and consistency, I endeavor to employ in this Declaration the columns and lines numbers of the '472 Patent when referring to the specification of the patents-in-suit. On the other hand, I will refer to the respective columns and line numbers of the '761 Patent for any issues unique to the '761 Patent.

16. I understand that the asserted patent claims generally relate to a camera system that automatically uploads pictures over a cellular network to a picture hosting site when certain conditions exist. The asserted patent claims include a touch sensitive display that allows the user of the camera system to select an option or input to confine the automatic uploads to periods without potential cellular network access fees ('761 Patent, Claim 1) or to periods without potentially increased cellular network access fees ('472 Patent, Claims 1 and 5).

17. I have been informed by counsel that Claims 1-4 and Claim 16 from the '761 Patent have been asserted in the present action. Similarly, I understand that Claims 1-2 and Claims 5-6 from the '472 Patent have been asserted in the present action.

Person Of Ordinary Skill In The Art

18. I understand from counsel that patent claims should be construed from the perspective of a hypothetical person having ordinary skill in the relevant art ("POSITA"). I also understand that the level of skill in the art may be evidenced by references published at or around the time of the filing of the patent or patents under consideration. In performing my analysis, I have applied the level of ordinary skill in the art based upon such guidance.

19. The field of the inventions claimed in the patents-in-suit is set forth in Paragraph 16 above. In my opinion, a person of ordinary skill in the relevant art would possess a Bachelor

of Engineering degree or a Bachelor of Science degree in Engineering or Computer Science and, in addition, have approximately three or more years of related work experience. My own credentials include those of such a person.

20. I note that T-Mobile's expert Dr. Wolfe appears to agree with this description of a POSITA when he states "I do not disagree with the definition of a person of ordinary skill in the art set forth in Dr. Hughes's declaration." (Expert Declaration Of Dr. Andrew Wolfe ("Wolfe Declaration"), Paragraph 21, February 27, 2025).

Principles Of Claims Construction

21. I understand from counsel that when determining the meaning of patent claim terms one should begin by considering the intrinsic evidence. The intrinsic evidence includes the claims themselves, the specification of the patent, the prosecution history of the application that matured into the patent, and the respective prosecution histories of related patents addressed to the same subject matter.

22. I also understand that there is a heavy presumption that claim terms are to be given their plain-and-ordinary meaning. The plain-and-ordinary meaning is the meaning that the term would have to a person of ordinary skill in the art in question at the time of the invention. For this present Declaration, I was instructed to provide my analysis from the perspective of a person of ordinary skill in the art as of the time that the original parent application was filed—namely, October 17, 2005.

23. Further, I understand that a claim term's context in the associated patent claim can be instructive when ascertaining the proper meaning of that term. Also, other asserted or unasserted claims can aid in determining the claim's meaning.

24. Counsel has informed me that there are only two exceptions to the general rule that

claims are to be construed according to their plain-and-ordinary meaning. These exceptions are (1) when the patentee has acted as his own lexicographer, or (2) when the patentee has expressly and unambiguously disavowed in the intrinsic record the full scope of a claim term.

Indefiniteness

25. I understand from counsel that patent claims must particularly point out and distinctly claim the subject matter regarded as the invention, which requires a claim, when viewed in light of the intrinsic evidence, to "inform those skilled in the art about the scope of the invention with reasonable certainty." Whether or not a claim is "indefinite" is determined from the perspective of a person of ordinary skill in the art as of the time that the application was filed and in light of the specification.

26. I am instructed that indefiniteness must be proven by "clear and convincing evidence", which is more rigorous to meet than the "preponderance of evidence" standard. The "clear and convincing" legal standard means that the evidence being presented must be highly and substantially more probable to be true rather than untrue, while "preponderance of evidence" requires that the evidence be "more likely than not" to prove the matter at hand.

Incorporation By Reference

27. I am advised that material may be incorporated by reference into a patent specification by reference to a U.S. patent or to a U.S. patent application publication. An incorporation by reference must be set forth in the patent specification and must: (1) express a clear intent to incorporate by reference by using the root words "incorporat(e)" and "reference" (e.g., "incorporate by reference"); and (2) clearly identify the referenced patent, application, or publication. I am also advised that information incorporated by reference is as much a part of the application as filed as if the text was repeated in the application, and should be treated as part of

the text of the application as filed.

28. I am prepared to offer the following opinions at an evidentiary hearing or at trial, with the bases and reasons explained below.

Means-Plus-Function

29. I am instructed that, unless the word "means" is used regarding the claim term at issue, a rebuttable presumption arises that the term is not means-plus-function.

30. I am instructed that when a term is defined under means-plus-function, it is indefinite if the patent does not properly specify the structure which performs the function and sufficiently tie the structure to that function.

31. I am instructed that means-plus-function is codified in 35 U.S.C. § 112 Paragraph 6 and the topic is therefore sometimes abbreviated as "§ 112 ¶ 6", or as "112 ¶ 6".

32. I am instructed that the associated determination can involve a two-step process. In Step 1, one determines if a claim term is means-plus-function. If not, then the analysis is complete and the inquiry stops. But, if Step 1 ascertains that the claim term is means-plus-function, then (and only then) does the analysis proceed to Step 2.

33. I have been provided with the following specific instructions as relates to Step 1 and to Step 2:

Step 1: Is It Means-Plus-Function?

i. Because invoking § 112 ¶ 6 is typically a choice left to the claim drafter, one is to presume at the first step of the analysis that a claim limitation is not drafted in means-plus-function format in the absence of the term "means". This presumption can be overcome and § 112 ¶ 6 will apply if the challenger demonstrates that the claim term fails to recite sufficiently definite structure or else recites function

without reciting sufficient structure for performing that function.

ii. Intrinsic evidence, such as the claims themselves and the prosecution history, can be informative in determining whether the disputed claim language recites sufficiently definite structure or was intended to invoke § 112 ¶ 6.

iii. Structure maybe provided by describing the claim limitation's operation, such as its input, output, or connections. To one of skill in the art, the "structure" of computer software is understood through, for example, an outline of an algorithm, a flowchart, or a specific set of instructions or rules.

Step 2: Only If Means-Plus-Function

i. Only in situations where both (1) a claim term is determined to be means-plus-function, despite not reciting the word "means", and (2) the function of that term requires implementation in a special purpose computer, the specification must disclose an algorithm for performing the claimed function. The algorithm may be expressed as a mathematical formula, in prose, or as a flowchart, or in any other manner that provides sufficient structure. Moreover, for the algorithm requirement, the amount of detail that must be included in the specification depends on the subject matter that is described and its role in the invention as a whole, in view of the existing knowledge in the field of the invention. For functions that are coextensive with the structure disclosed, such as a general purpose processor, it is not necessary to disclose more structure than the general purpose processor that performs those functions.

Introduction To Summary Of Opinions

34. In a previous case litigated in this same Court, namely Case No. 6:22-CV-00285-

ADA, I provided an Expert Declaration (see, Expert Declaration Of David W. Hughes, *Cutting Edge Vision, L.L.C. v. TCL Technology Group Corporation, et al.*, Case No. 6:22-CV-00285-ADA, December 12, 2022) germane to several of the same topics of interest in the present litigation. So, for the convenience of the Court, the table below provides a cross-reference detailing the technical topics and the paragraphs from my December 12, 2022 Expert Declaration that are incorporated into the present declaration substantially unchanged.

a. "The Device"–Paragraphs 68-83 from my December 22, 2022 Declaration are incorporated herein as Paragraphs 36-51 substantially unchanged.

b. "Cellular Network Access Fees"–Paragraphs 84-91 from my December 22, 2022 Declaration are incorporated herein as Paragraphs 54-61 substantially unchanged.

c. "Periods Without Potential Cellular Network Access Fees"–Paragraphs 94-95 and Paragraphs 97-100 from my December 22, 2022 Declaration are incorporated herein as Paragraphs 62-67 substantially unchanged.

d. "Periods Without Potentially Increased Cellular Network Access Fees"–Paragraphs 102-111, Paragraphs 113-114, and Paragraph 116 from my December 22, 2022 Declaration are incorporated herein as Paragraphs 68-80 substantially unchanged.

e. "Controller"–Paragraphs 34-36 from my December 22, 2022 Declaration are incorporated herein as Paragraph 83 and Paragraphs 86-87 substantially unchanged.

I. "The Device"

35. Defendants contend that "Claim 1 of the '761 Patent is indefinite because 'the device' lacks antecedent basis and could refer to different structures—the 'camera system' or the 'controller'..." (excerpted from Defendants' Opening Claim Construction Brief, Page 16, February 27, 2025).

36. The phase "the device" appears once in the entire ensemble of patent claims that have been asserted in the present litigation. In particular, this phrase appears in '761 Patent, asserted Claim 1 at Column 16, Line 67 where the patent claim recites, in part, "...instructs the device...".

37. In the context of the present dispute, and for at least the reasons detailed below, I am of the opinion that a POSITA would understand that the "device" is the "camera system" recited in the preamble portion of '761 Patent, Claim 1 (see, '761 Patent, Column 16, Line 58).

38. To begin the analysis, please consider this express recitation from a portion of '761 Patent, asserted Claim 1:

> "receive, via the touch sensitive display, a user selection of an upload option that *instructs the device* to confine *automatic picture upload* to periods without potential cellular network access fees" (excerpted from '761 Patent, Column 16, Line 66 through Column 17, Line 2) (emphasis via italics added here).

39. And, in this context, please also consider the following disclosure from the patent specification:

> "For example, *the inventive camera system can be instructed to automatically send the pictures* to an email account, internet picture hosting site, web-based photo printing site, the user's internet-connected home computer (when he is on vacation, for instance), etc." ('472 Patent, Column 13, Lines 22-27) (parenthetical insertion in the original) (emphasis via italics added here).

40. Then consider the following teaching from the specification of the patents-in-suit, that describes the same operation from the claim that "the device" is "instructed" to perform:

> "Additionally, the inventive camera system is preferably operable so that the automatic

connection is made only at certain times of the day or weekends, etc., so as to confine picture transmission to periods of low network usage or periods of cheaper network access, etc." ('472 Patent, Column 13, Lines 3-7).

41. In my opinion, this language from '761 Patent asserted Claim 1 in concert with the above disclosure from the patent specification confirm that "the inventive camera system" is "the device" that is "instructed to confine automatic picture upload" as recited in Claim 1 of the '761 Patent.

42. As similar corroborating evidence that "the device" is necessarily the "camera system", recall from above that the phrase "the device" appears in the '761 Patent claim recitation "instructs the device". Thus, it is appropriate to examine other parts of the specification of the patent to see what "device" is disclosed as being "instructed". To this end, please consider these additional teachings from the specification of the patents-in-suit:

a. "...instruct the camera..." (excerpted from '472 Patent, Column 5, Lines 36-37).

b. "...instruct the camera..." (excerpted from '472 Patent, Column 5, Line 63 through Column 6, Line 2).

c. "...the inventive camera system is operable for being instructed..." (excerpted from '472 Patent, Column 12, Line 62 through Column 13, Line 1).

d. "...the inventive camera system can be instructed…" (excerpted from '472 Patent, Column 13, Lines 22-27).

43. In short, these additional teachings from the specification confirm that "the camera" (a.k.a. "the inventive camera system") is "the device" that is recited in Claim 1 of the '761 Patent.

44. As still further support, during prosecution of the application that matured into the '761 Patent-in-suit, CEV made the following representation to the U.S. Patent & Trademark Office

related to three claims that were pending at that time:

> "However, a person of ordinary skill in the art at the time of the invention would immediately see the disclosure of menu options in Applicant's specification and the various functions of *the device claimed*, and recognize how to include those claimed functions as part of menus in *the device*."

(Patent Application No. 14/950,370; Response To Non-Final-Office Action, Page 11, Lines 28-31, December 20, 2017) (both emphases via italics added here).

45. The three independent claims that were pending when the above statement was made were preliminarily numbered Claim 21, Claim 30, and Claim 38 (see, Patent Application No. 14/950,370; Response To Non-Final-Office Action, Page 11, Lines 26-27, December 20, 2017). These three claims begin with the respective language reproduced below:

a. "A camera system comprising:" (excerpted from pending Claim 21) (Patent Application No. 14/950,370; Response To Non-Final-Office Action, Page 4, Line 4, December 20, 2017).

b. "A camera system comprising:" (excerpted from pending Claim 30) (Patent Application No. 14/950,370; Response To Non-Final-Office Action, Page 6, Line 7, December 20, 2017).

c. "A camera system comprising:" (excerpted from pending Claim 38) (Patent Application No. 14/950,370; Response To Non-Final-Office Action, Page 8, Line 4, December 20, 2017).

46. Thus, in each of these three instances, it appears that CEV equated "the device" with the claimed "camera system".

47. As further support, I considered that the '761 Patent and the '472 Patent are both

asserted in the present litigation, the '761 Patent and the '472 Patent are directed to similar subject matter, and both patents share identical titles and the same inventor. As such, it is useful to compare certain language appearing in the claims from the '761 Patent to similar language that appears in the claims from the '472 Patent.

48. First, consider this language from the '761 Patent claims:

a. "...a user selection of an upload option that instructs *the device* to confine automatic picture upload to periods..." (excerpted from '761 Patent, Claim 1 at Column 16, Line 66 through Column 17, Line 2) (emphasis via italics added here).

b. "...a user selection of an upload option that instructs *the device* to confine automatic picture upload to periods..." (excerpted from '761 Patent, Claim 17 at Column 18, Lines 43-46) (emphasis via italics added here).

49. Next, I considered this language from the '472 Patent claims also asserted in this matter:

a. "...a user selection of an upload option that instructs *the camera system* to confine automatic picture upload to periods..." (excerpted from '472 Patent, Claim 1 at Column 17, Lines 14-19) (emphasis via italics added here).

b. "...a user-selectable input that instructs *the camera system* to confine automatic picture upload to periods..." (excerpted from '472 Patent, Claim 5 at Column 18, Lines 12-15) (emphasis via italics added here).

50. So, as above, examination of parallel language in these companion patent claims suggests to the POSITA that "the camera system" is "the device" that is recited in Claim 1 of the '761 Patent.

51. In short, it is my opinion, based on the analysis detailed above, that it would be

understood by the POSITA that "the device" recited in '761 Patent, Claim 1 (see, '761 Patent, Column 16, Line 67) is clearly referring to the "camera system" recited in the preamble portion of '761 Patent, Claim 1 (see, '761 Patent, Column 16, Line 58).

52. As an additional part of its argument that "the device" might somehow be just the "controller" T-Mobile contends that "...a POSITA would understand that the 'device' could refer to the 'controller.'" (excerpted from Defendants' Opening Claim Construction Brief, Page 17, February 27, 2025). However, I note that T-Mobile cites no expert testimony supporting what a "POSITA" would actually "understand" on this topic.

53. Finally, it is noted that in its "Final Construction" for claim terms in the '761 Patent-in-suit this Court previously ruled that "'The device' is 'the camera system,' and is not indefinite." (Claim Construction Order, *Cutting Edge Vision, L.L.C. v. TCL Technology Group Corporation, et al.*; Case No. 6:22-CV-00285-ADA; E.D. TX; Page 5, February 2, 2023).

II. "Cellular Network Access Fees"

54. The phrase "cellular network access fees", as disclosed and claimed in the patents-in-suit, refers to data upload fees specifically for the upload. Generally speaking, assuming that the other claim limitations are also met, in the asserted claims from the '761 Patent the user of the inventive technology requires avoidance of picture uploading during any period where there is a possibility of the cellular network provider charging him a data upload fee specifically for the upload. And, assuming that the other claim limitations are also met, in the asserted claims from the '472 Patent the user of the inventive technology requires avoidance of picture uploading during any period where there is a possibility of the cellular network provider charging a data upload fee more than the normal data upload fee.

a. It is, of course, well known that there are not generally periods when the customer

has unfettered free access to all of the services provided by the cellular network. So, the claimed "cellular network access fees" are necessarily referring to data upload fees, not to one's normal, fixed monthly plan charge.

b. For instance, notice that the asserted claims generally recognize that the magnitude of fees might vary from one period to the next. In contrast, a fixed monthly plan charge on a provider plan generally does not vary from one upload period to the next.

c. The asserted claims also contemplate that the decision on whether to upload or not upload depends on information received via the cellular interface. But, fixed monthly plan charge information is not generally provided in that manner.

55. In addition, consider, for instance, these teachings from the patent specification that support the claim language:

a. "Additionally, the inventive camera system is preferably operable so that the automatic connection is made only at certain times of the day or weekends, etc., so as to confine picture transmission to periods of low network usage or *periods of cheaper network access*, etc." ('472 Patent, Column 13, Lines 3-7) (emphasis via italics added here).

b. "Cellular service providers typically charge a fee for internet access or emailing and so an automatic feature to connect to the net or send email for the purposes of transmitting pictures *can improve revenue generation for these companies*." ('761 Patent, Column 14, Lines 31-35) (emphasis via italics added here).

56. Also recall that during prosecution of the application that matured into the '761 Patent-in-suit, CEV made the following representation to the U.S. Patent & Trademark Office:

> "...Mr. Lesko proposed that (in the interest of compact and efficient prosecution) an amendment to the claims should be filed in the present case to include the allowable subject matter from the '736 Application, which would result in prompt allowance. The Examiner agreed and instructed Applicant to file a supplemental amendment herein." (Patent Application No. 14/950,370; Supplemental Amendment To The Claims; Interview Summary And Remarks; Page 9, Lines 5-10; February 8, 2018) (parenthetical insertion in the original).

57. Note that the recitation of "the '736 Application" refers to Patent Application No. 15/188,736—that matured into related U.S. Patent No. 9,936,116 by the same inventor as the patents-in-suit in the present litigation.

58. Also note that the claims language "confine automatic picture upload to periods without potential cellular network access fees" appears in the claims of the '116 Patent. Subsequently, this same language was copied over into the amended claims of the application that matured into the '761 Patent-in-suit in order to facilitate allowance of those claims.

59. In fact, during prosecution of the claims that ultimately issued in the related '116 Patent, CEV made the following representations to the U.S. Patent & Trademark Office:

a. "Applicant pointed to at least Paragraph [0038] of the specification, which discusses 'confin[ing] picture transmission to periods of low network usage or periods of cheaper network access.' Applicant explained to the Examiner that this statement is applicable to cellular uploads as claimed, and the Examiner agreed." (Patent Application No. 15/188,736; Amendment After Final Office Action; Page 6, Lines 9-12; December 11, 2017) (material in both square brackets in the original).

b. "Applicant distinguished the present claims from a 'timer.'" (Patent Application No. 15/188,736; Amendment After Final Office Action; Page 6, Line 15; December 11, 2017).

c. "Applicant's invention...offers many explicit benefits over a simple timer. For example, a simple timer for picture upload (i.e., setting the upload for 8 PM) would still result in charges to a user's account if the user is 'roaming' at the designated time that the upload begins. In short, a timer does not adequately prevent roaming or other network charges that can be incurred during photo uploads." (excerpted from Patent Application No. 15/188,736; Amendment After Final Office Action; Page 6, Lines 20-25; December 11, 2017) (parenthetical insertion in the original).

d. "...Rothschild's upload is completed by an intermediate computer...nor is it concerned with confining the uploads to periods of cheaper cellular network access (avoiding roaming charges, etc.), as part of the automatic upload process" (excerpted from Patent Application No. 16/663,742; Applicant-Initiated Interview Summary; December 12, 2017) (parenthetical insertion in the original).

e. "Montulli...describes background art purportedly addressed to uploading images using the cellular network. Avoiding network access fees (not roaming, etc.) is not described as a condition for automatic upload." (excerpted from Patent Application No. 16/663,742; Applicant-Initiated Interview Summary; December 12, 2017) (parenthetical insertion in the original).

60. So, in the above-described examples, one type of period where the inventive technology can be prevented from picture uploading is when "roaming" occurs.

61. Data roaming fees are one example of well-known potential cellular network access

fees and potentially increased cellular network access fees expressly mentioned in the intrinsic record. At the time of the invention, it was well known that uploads during data roaming may (but do not always) result in cellular network access fees incurred from sending data over the network used when roaming. Therefore, it is my opinion that a POSITA would have been well aware of the existence and significance of potential fees and of potentially increased fees relating to certain data uploads.

III. "Periods Without Potential Cellular Network Access Fees"

62. The phrase "periods without potential cellular network access fees" appears once in Claim 1 of the '761 Patent-in-suit. In particular, this phrase appears in '761 Patent, Claim 1 at Column 17, Lines 1-2.

63. To begin, and as explained in the section above, the phrase "cellular network access fees" as disclosed and claimed in the patents-in-suit refers to data upload fees specifically for the upload. Thus, the phrase "periods without...cellular network access fees" refers to times and situations when the customer is not being charged a data upload fee.

64. Next, please consider the word "potential" as it appears in the context of the asserted claims. In particular, '761 Patent, Claim 1 recites in part "a user selection of an upload option that instructs the device to confine automatic picture upload to periods without potential cellular network access fees" ('761 Patent, Claim 1 at Column 16, Line 66 through Column 17, Line 2). That is, the user selects an option on his device that will avoid possible data upload fees.

65. Notice that the user does not even have to be consciously aware that he is in a period with potential cellular network access fees such as, for example, roaming fees. The device and the cellular network provider figure that out on their own. The user simply has an option that avoids potential cellular network access fees by preventing uploading during such periods.

66. Notice also that the above-described option is a characteristic of the claimed system independent of whatever cellular network plan is in place. Indeed, the inclusion of the claim word "potential" has the effect of making the corresponding claim independent of any cellular network plan.

67. Notice also that the option is a characteristic of the system independent of whether a user ultimately chooses it. According to the claim, the option exists, it exists for a reason, and it will result in a specific operation if selected, but the claim is a system claim, not a method claim.

IV. "Periods Without Potentially Increased Cellular Network Access Fees"

68. The phrase "periods without potentially increased cellular network access fees" appears twice in asserted Claim 1 of the '472 Patent-in-suit. In particular, this phrase appears in '472 Patent, asserted Claim 1 at Column 17, Lines 18-19; and in '472 Patent, asserted Claim 1, Column 17, Lines 28-29.

69. The phrase "periods without potentially increased cellular network access fees" appears twice in asserted Claim 5 of the '472 Patent-in-suit. In particular, this phrase appears in '472 Patent asserted Claim 5 at Column 18, Lines 14-15; and in '472 Patent asserted Claim 5 at Column 17, Lines 26-27.

70. The phase "period without potentially increased cellular network access fees" appears once in asserted Claim 5 of the '472 Patent-in-suit. In particular, this phrase appears in '472 Patent, asserted Claim 5 at Column 18, Lines 29-30.

71. To begin, and as explained earlier, the phrase "cellular network access fees" as disclosed and claimed in the patents-in-suit refers to data upload fees specifically for the upload.

72. Thus, the phrase "periods without...increased cellular network access fees" refers to times and situations when the customer is not being charged a data upload fee above and beyond

their normal data upload fee. Consider this specific example, as revealed to the U.S. Patent & Trademark Office during the prosecution of the application that matured into the '472 Patent-in-suit:

> "'Periods of cheaper network access,'...can be determined via 'status of equipment' because the device receives cellular network information from equipment on the cellular network. As an example...equipment on the network indicates to the cellular phone (through its cellular interface) that the device is roaming on a more-expensive non-provider network. This roaming period would *not* be 'one of the periods without potentially increased cellular network access fees,' and upload is prevented during this particular period."

(excerpted from Patent Application No. 16/663,742; Response To Non-Final Office Action; Page 9, Lines 24-30; June 11, 2021) (parenthetical insertion in the original) (emphasis via italics in the original).

73. Next, please consider the word "potentially" as it appears in the context of the asserted claims. In particular, '472 Patent, Claim 1 recites in part "a user selection of an upload option that instructs the camera system to confine automatic picture upload to periods without potentially increased cellular network access fees" ('472 Patent, Claim 1 at Column 17, Lines 14-19). Similar language appears in '472 Patent, Claim 5 at Column 18, Lines 12-15. That is, the user selects an option on their device that will avoid the possibility of being charged a data upload fee above and beyond their normal data upload fee.

74. Asserted Claim 1 from the '472 Patent also uses this same phrase in that claim when it recites "the upload is allowed because the system is within one of the periods without potentially increased cellular network access fees, as determined using data from the cellular interface" ('472

Patent, Claim 1 at Column 17, Lines 27-32). Similar language appears in '472 Patent, Claim 5 at Column 18, Lines 27-30). And, the device is to avoid the possibility of being charged a data upload fee above and beyond the normal data upload fee.

75. Notice that the user does not even have to be consciously aware that he is in a period with potentially increased cellular network access fees such as, for example, roaming fees. The device and the cellular network provider figure that out on their own. The user simply has an option that avoids potentially increased cellular network access fees by preventing uploading during such periods.

76. Notice also that the above-described option is a characteristic of the claimed system independent of whatever cellular network plan is in place. Indeed, the inclusion of the claim word "potentially" has the effect of making the corresponding claim independent of any cellular network plan.

77. Notice also that the option is a characteristic of the system independent of whether a user ultimately chooses it. According to the claim, the option exists, it exists for a reason, and it will result in a specific operation if selected, but the claim is a system claim, not a method claim.

78. Further, one place where CEV provided express guidance on this topic is where CEV explained to the U.S. Patent & Trademark Office in the context of a related application: "...Rothschild's upload is completed by an intermediate computer...nor is it concerned with confining the uploads to periods of cheaper cellular network access (avoiding roaming charges, etc.), as part of the automatic upload process" (excerpted from Patent Application No. 16/663,742; Applicant-Initiated Interview Summary; December 12, 2017) (parenthetical insertion in the original).

79. Further, in my opinion, the POSITA would have clearly understood that the phrase

"potentially increased" is not a term of degree.

a. The word "potentially" has a well understood meaning. Consider, as some examples, potentially storming or potentially problematic. In such instances, the word potentially makes it clear that there is at least the possibility that the described thing will happen. But, an understanding of the word potentially does not require an evaluation of the exact mathematical probability of occurrence. In summary, the word potentially does not mandate any evaluation whatsoever of degree.

b. Similarly, the word "increased" by its plain and ordinary meaning covers any increase small or large, and it therefore does not mandate any evaluation whatsoever of degree.

c. Finally, combining the words potentially and increased (neither of which requires evaluation of degree) does not result in a phrase that somehow requires evaluation of degree.

80. Moreover, the plain English language of the claims themselves determine how much of an increase of the network access fees is needed.

a. It is well known that, by definition, any increase whatsoever qualifies as an increase. So, in the present context, any data upload fee above and beyond the normal fee that results from an upload qualifies as an increase.

b. In short, variations in the magnitude of the price difference may exist, but that is not unclear to the POSITA. Indeed, even an increase of only a single penny is still an increase based on the plain meaning of the word "increase."

c. Furthermore, the magnitude of the normal data upload fee to which the increase is being compared does not matter.

V. "Controller" Is Not A Means-Plus-Function Claim Element

81. Defendants contend that "...the term 'controller configured to' is a means-plus-function claim element" (excerpted from Defendants' Opening Claim Construction Brief, Page 10, February 27, 2025). In my opinion, and as explained below, Defendants are incorrect.

82. Similarly, Defendants' expert Dr. Wolfe goes on to contend that a means-plus-function construction should apply to the term "controller". (see, e.g., Wolfe Declaration, Paragraph 82, February 27, 2025). As such, I have been requested by counsel to review the relevant materials (including Dr. Wolfe's Declaration) in order to inform my own opinion as to whether the term "controller" would be understood by a POSITA to be a known class of structures.

83. The word "controller" appears twice in '761 Patent, asserted Claim 1. In particular, the word "controller" appears in '761 Patent, asserted Claim 1 at Column 16, Line 65 and again in '761 Patent, asserted Claim 1 at Column 17, Line 9. Similarly, the word "controller" appears twice in '472 Patent, asserted Claim 1. In particular, the word "controller" appears in '472 Patent, asserted Claim 1 at Column 17, Line 11 and again in '472 Patent, asserted Claim 1 at Column 17, Line 25. Finally, the word "controller" appears in '472 Patent, asserted Claim 5 at Column 18, Line 9 and again in '472 Patent, asserted Claim 5 at Column 18, Line 28.

84. As an initial matter, I was asked to review and consider the Court's decision in *True Chem. Sols., LLC v. Performance Chem.*, Co., No. 18 Civ. 00078, Pages 11-12 (W.D. Tex. Sep. 25, 2019). In that case, the Court held that "controller" is not a means-plus-function element because "[t]o a POSITA with a background in electrical engineering, a controller is a well-known and well-understood term that refers to an electrical device (e.g., system-on-a-chip ("SoC") or application-specific integrated circuit ("ASIC")) that controls the operation of other components in the system". (both parenthetical insertions in the original).

85. I was also asked to consider *Barkan Wireless IP Holdings, L.P. v. Samsung Elecs. Co.*, Case No. 2:18-CV-28-JRG (E.D. TX, Feb 7, 2019), where at Pages 23-25 the Court declined to construe "controller" as means-plus-function, in part because the evidence showed that "controller" refers to a known class of structures.

86. Further, my review of the intrinsic record for the patents-in-suit revealed that CEV expressly stated during prosecution that it did not intend for any claim elements to be interpreted as means-plus-function. For instance, in the application that matured into the '761 Patent-in-suit, CEV made the following statement:

> "Applicant has taken care to prepare the claims in a manner that does not fall within 35 U.S.C. Section 112, Para. 6. Specifically, Applicant has undertaken to draft the claims in a manner that recites structure, material, or acts in support of the various operations. Applicant requests that the Examiner inform Applicant if he believes that any claim falls within 35 U.S.C. Section 112, Para. 6, so that appropriate amendments can be made."
>
> (Patent Application No. 14/950,370; Preliminary Amendment, Page 10, Lines 18-22, November 24, 2015).

Similarly, CEV submitted this same statement in the application that matured into the '472 Patent-in-suit. (see, Patent Application No. 16/663,742; Preliminary Amendment, Page 8, Lines 33-38, October 25, 2019).

87. In my experience as an electrical engineer, the word controller describes a class of known structures, namely a device or group of devices that controls the operation of other components of a system. In my opinion, the POSITA would have shared this same understanding.

88. Moreover, the context of the claims themselves is consistent with my experience and helps to inform my opinion:

a. For instance, Claims 1 and 5 of the '472 Patent each recite "a controller coupled to

the cellular interface, the non-volatile local memory and the touch sensitive display". A cellular interface, a non-volatile local memory, and a touch sensitive display are all themselves hardware devices that, in turn, are coupled to the recited controller. A POSITA would thus conclude that the controller coupled to those hardware devices necessarily includes a hardware structure.

b. Further, as relates to Claim 1 of the '472 Patent, the controller is:

i. configured to receive "via the touch sensitive display, a user selection of an upload option".

ii. configured to automatically connect to a picture hosting service "that is internet-based".

iii. configured to enable an upload to the picture hosting service "over the internet and via the cellular interface, of a group of image sensor-captured pictures stored in the local memory".

c. '761 Patent, Claim 1 and '472 Patent, Claim 5 contain similar recitations of hardware components that communicate with, or are coupled to, the controller.

d. I believe that this claims language is important, because it confirms the understanding of a POSITA that a controller is a specific hardware device that communicates with and controls other hardware devices of the system.

89. As part of its argument that "controller" is a means-plus-function term, T-Mobile contends that "Reciting 'operable' to perform a specific function is the essence of functional claiming." (Defendants' Opening Claim Construction Brief, Page 6, February 27, 2025). But, the material that T-Mobile relies upon for their contention is from the patent specification, not from the patent claims. In fact, the word "operable" does not appear in any of the claim elements that

expressly refer to the claimed controller.

90. As part of its argument that "controller" is a means-plus-function term, T-Mobile's expert Dr. Wolfe contends that "The applicants...represented that the claims recite 'upload functions' and 'other functions'..." (excerpted from Wolfe Declaration, Paragraph 92, February 27, 2025). But, the prosecution history relied upon by Dr. Wolfe for his assertion discusses the specification and figures, not the patent claims. Specifically, CEV stated (emphasis via italics added here) (clarifying material in square brackets appears in the Wolfe Declaration):

> "[T]he *specification* expressly instructs one skilled in the art to interact via touch technology with menus on the LCD to control camera features and functions. These Camera functions include automatic upload functions, as the touchscreen control is not described as being separate or excluded from other camera features.
>
> . . .
>
> Also, in *Fig. 3* The LCD touchscreen display 42 is shown as an input to the camera controller 40 that handles 'other camera control' 50. In other words, *Fig. 3* shows the interconnection between the LCD touchscreen input and 'other' functions, such as upload functions."

The italicized text above shows that these statements discuss the "specification" and "Fig. 3" and are not a representation that any claim element is a "function" or means-plus-function. In fact, neither the phrase "upload functions" nor the phrase "other functions" are ever recited in any of the patent claims germane to the present litigation.

91. As part of its argument that "controller" is a means-plus-function term, T-Mobile's expert Dr. Wolfe asserts that "When the specification begins discussing a controller for communicating pictures over the internet, it discusses the use of undisclosed 'wireless interface

technology' and 'software and hardware' as shown below." (excerpted from Wolfe Declaration, Paragraph 109, February 27, 2025). But the characterization "undisclosed" is wrong. Specifically, the '472 Patent at Column 12, Lines 26–61, which Dr. Wolfe cites with his argument at Paragraph 109, states (parenthetical insertions in the original) (emphases via italics added here):

> "In a second preferred embodiment of this aspect of the invention, the inventive camera system is equipped with software and hardware coupled to the camera controller allowing independent communication with a computer network for the primary purpose of communicating its pictures over the internet. Currently preferred is *WIFI which is typically connected by LAN, routers, etc. to the internet* and which usually allows WIFI-equipped devices to independently connect to the internet (FIG. 3, element 46c). Alternatively, the invention contemplates the use of wired LAN, *cellular data networks, etc. as the interconnection technology* (FIG. 3, element 46b) used by the inventive camera system. The inventive camera system is further preferably equipped with *a microbrowser that runs on the inventive camera system's camera controller which is preferably a microprocessor.* It is contemplated that some embodiments may not be required a microbrowser (see enhancement below). Design and operation of microbrowser-equipped electronic devices for use with the internet is well known in the art and need not be discussed further. The camera system *LCD display* serves the purpose of displaying internet webpages when the user is navigating the internet in addition to its function as the *camera display*…."

92. As shown above, the "wireless interface technology" is not "undisclosed." In fact, the exact specification excerpt relied upon and reproduced by Dr. Wolfe in Paragraph 109 of his declaration expressly recites "WIFI which is typically connected by LAN, routers, etc. to the internet"; "WIFI-equipped devices to independently connect to the internet"; and "cellular data

networks, etc. as the interconnection technology" as specific examples. The "software and hardware" is also not "undisclosed." In fact, the exact specification excerpt relied upon and reproduced by Dr. Wolfe in Paragraph 109 of his declaration expressly recites "a microbrowser that runs on the inventive camera system's camera controller which is preferably a microprocessor"; "LCD display"; and "camera display" as specific examples, in addition to the disclosed "wireless interface technology" listed above. Thus, the specification describes that the controller works with other specific hardware, software, and interconnection technology to perform uploading, which confirms to a POSITA that the controller is a structure connected to and operating together with other structures.

93. As part of its argument that "controller" is a means-plus-function term, T-Mobile's expert Dr. Wolfe states that "...Figure 3 depicts the 'camera controller' 40 as a labeled generic box..." (excerpted from Wolfe Declaration, Paragraph 112, February 27, 2025). But, in fact, Figure 3 shows the camera controller connected to a variety of other components including "camera CCD", "view finder", "cellular interface", "AF motor", "zoom motor", "storage media R/W", "LCD display", "remote light sensor", "buttons", "touch pad device", and "voice recognition unit". Each of these components is, in itself, a structural hardware device that is, in turn, connected to the camera controller. A POSITA would thus conclude that the controller coupled to those hardware devices necessarily includes a hardware structure. Showing items, even hardware, in boxes is standard practice for block diagrams, and indeed, Figure 3 shows all of its elements (except the microphones) as boxes, including all of the structural, hardware elements.

94. As part of its argument that "controller" is a means-plus-function term, T-Mobile's expert Dr. Wolfe critiques my earlier expert declaration by stating "Dr. Hughes...provides various dictionary definitions..." (excerpted from Wolfe Declaration, Paragraph 115, February 27, 2025).

But, please note that Dr. Wolfe does not deny that any of the dictionary definitions that I provided earlier are incorrect. Also notice that these definitions detail that a controller can comprise a "circuit board", a "circuit," a "device", a "chip", or "a group of devices". Further note that a "circuit board", a "circuit," a "device", a "chip", or "a group of devices" are each, in turn, a structure. As discussed in my earlier declaration at Paragraph 45, to further inform my opinion that the "controller" had a well understood and definite meaning to a POSITA, I consulted several technical dictionaries spanning the period from 1996 to 2004 that, in my opinion, are all consistent with the understanding of a POSITA. And, each of these technical dictionary definitions confirm that the word "controller" describes a well-known class of structures:

a. *The IEEE Standard Dictionary of Electrical and Electronics Terms*, Page 217, 1996 includes the following definitions of "controller": "(4) The component of a system that functions as the system controller. A controller typically sends program messages to and receives response messages from devices. (5) A functional unit in a computer system that controls one or more units of the peripheral equipment."

b. *Wiley Electrical And Electronics Engineering Dictionary*, Page 145, 2004; includes the following definitions of "controller": "1. A circuit board or device which controls the way peripheral devices access the computer, and vice versa. It is usually contained on a single chip…2. A signal, circuit, device, or system which controls any given mechanism, function, process or piece of equipment…3. A circuit, mechanism, device, or system, which monitors one or more variables, and automatically makes the necessary adjustments in order to maintain operation within the specified parameters."

c. *Modern Dictionary Of Electronics*, Page 151, 1999;includes the following

definition: "controller...a device or group of devices that serves to govern, in some predetermined manner, the electric power delivered to the apparatus to which it is connected."

95. As part of its argument that "controller" is a means-plus-function term, T-Mobile's expert Dr. Wolfe represents that "I have read the prior declarations of CEV's expert, Dr. Hughes..." (excerpted from Wolfe Declaration, Paragraph 115, February 27, 2025). But, I have not provided "prior declarations" (plural) in the CEV matters. Instead, I have provided only one declaration (singular).

96. As part of its argument that "controller" is a means-plus-function term, T-Mobile's expert Dr. Wolfe contends "I have reviewed Dr. Hughes' expert declaration concerning the term 'controller' submitted in prior litigation against TCL...Dr. Hughes does not disagree that the term fails to recite sufficient structure for performing the functions claimed. Dr. Hughes opines that the term 'controller' has some structure, but he never asserts it has the structure sufficient to perform the recited function." (excerpted from Wolfe Declaration, Paragraph 83, February 27, 2025). But Dr. Wolfe's statement is not true. In fact, what my previous expert declaration said is "In the alternative, should the Court find that 'controller' is a means-plus-function element, it is my opinion that the patent specification describes the structure that performs the claimed functions, and also sufficiently connects that structure to those claimed functions." (Expert Declaration Of David W. Hughes, Paragraph 49, December 12, 2022).

97. As part of its argument that "controller" is a means-plus-function term, T-Mobile's expert Dr. Wolfe comments on my earlier expert declaration when stating "In some places, he asserts that a controller is 'a device or group of devices that controls the operation of other components of the system.' Hughes Decl. at ¶ 36." (Wolfe Declaration, Paragraph 115, February

27, 2025). However, Dr. Wolfe ignores the initial portion of the statement from my earlier declaration. In fact, what the entire sentence from my earlier expert declaration actually said is "In my experience as an electrical engineer, the word controller describes a class of known structures, namely a device or group of devices that controls the operation of other components of a system." (Expert Declaration Of David W. Hughes, Paragraph 36, December 12, 2022).

98. As part of its argument that "controller" is a means-plus-function term, T-Mobile's expert Dr. Wolfe incorrectly quotes a portion of my earlier expert declaration by saying "CEV's expert opines that the term 'controller' refers to a 'microprocessor.' Id. at ¶ 38." (Wolfe Declaration, Paragraph 116, February 27, 2025). However, Dr. Wolfe misquotes the statement from my earlier declaration. In fact, what the relevant sentence from my earlier expert declaration actually said is "For instance, the specification recites at '472 Patent, Column 12, Lines 40-41 that the controller is 'preferably a microprocessor.'" (Expert Declaration Of David W. Hughes, Paragraph 38, December 12, 2022).

99. As further evidence that the word "microprocessor" refers to a known class of structures, Dr. Wolfe agreed at his deposition that it would be common in October of 2005 to use the word "microprocessor" to describe "the primary computing component of a general purpose computer", and that the word "micro" refers to the size of that physical component. In particular, Dr. Wolfe testified:

a. "Q: So, let's say as of 2005, October of 2005, how would you describe a microprocessor?

A: Again, I think it would depend on the context, but it would be common at that time to use that phrase to describe the primary computing component of a general purpose computer that would perform different computing tasks based on how it was

programmed." (Wolfe Deposition, Page 58, Lines 8-15).

b. "Q: So the word micro in the term microprocessor or microcontroller, what is that referring to? Why does it say micro?

A: Again, that depends on timeframe and context. But, initially, it was introduced in the 1980s as a way to differentiate computers that might be the size of a refrigerator from computers where the primary computing elements were on a single piece of silicon." (Wolfe Deposition, Page 61, Lines 16-24).

100. As part of its argument that "controller" is a means-plus-function term, T-Mobile's expert Dr. Wolfe contends "...the specification uses the term 'controller' in the broadest sense. It discusses various different types of controllers, such as...'ipod controller'...game 'controller', and 'joystick-like controller.'" (excerpted from Wolfe Declaration, Paragraph 104, February 27, 2025). In this same theme Dr. Wolfe also asserts "...the patent refers to joysticks, touchpads, and other structures as controllers" (excerpted from Wolfe Declaration, Paragraph 116, February 27, 2025). However, the claims asserted in the present matter all recite inventions comprising a "camera system" (see, e.g., '761 Patent, Claim 1, portion at Column 16, Line 58; '472 Patent, Claim 1, portion at Column 17, Line 2; '472 Patent, Claim 5, portion at Column 18, Line 1). Thus, it is apparent to a POSITA that a controller in the specification relevant to the asserted claims is a camera system controller, not a controller for an ipod, a game, or a joystick. Moreover, please note that Dr. Wolfe's relied-upon ipod, game, and joystick controllers are, in fact, all physical structures that a user manipulates, which confirms that the specification uses the word "controller" to describe structures. Indeed, T-Mobile's expert Dr. Wolfe agreed to as much when he characterized them as "structures" in the portion of his Paragraph 116 quoted immediately above.

VI. The Claims Provide Sufficient Hardware and Software Structure For All Operations

101. I have been advised by counsel that to one of skill in the art, the structure of computer software may be understood through, for example, an outline of an algorithm, a flowchart, or a specific set of instructions or rules.

102. In the present situation, and as will be explained in the paragraphs that follow, the instructions or rules for the claimed operations are detailed in the express language of the asserted claims themselves. Please consider element (f)(ii) Claim 1 from the '472 Patent-in-suit as exemplary:

"(f) a controller coupled to the cellular interface, the non-volatile local memory and the touch sensitive display, and configured to:

…

(ii) automatically connect to a picture hosting service that is internet-based and enable an upload to the picture hosting service, over the internet and via the cellular interface, of a group of image sensor-captured pictures stored in the local memory, during any period detected by the controller in which all three of the following conditions are met:

(1) the upload is allowed because the system is within one of the periods without potentially increased cellular network access fees, as determined using data from the cellular interface,

(2) the system is connected to the internet via the cellular interface; and

(3) at least one image sensor-captured picture stored in the local memory has been designated through the touch sensitive display as part of the group of pictures to be uploaded to the picture hosting service."

103. Let's begin with the portion of the claim language above that recites "a controller coupled to the cellular interface...and configured to...automatically connect...and enable an

upload...over the internet and via the cellular interface...during any period detected by the controller in which all three of the following conditions are met". This language says that the controller performs an operation automatically upon receipt of certain returns germane to all of the requisite conditions. In logical terms, this claim language mandates an IF-THEN decision tree algorithm.

104. Notice that the claim says the word "conditions." The fact that the word "conditions" appears in the claim suggests to a POSITA that the claim is referring to a conditional programming structure, such as IF-THEN programming structure. Dr. Wolfe confirmed at his deposition that "conditional statements" were known and common in programming as of 2005. In particular, Dr. Wolfe testified:

> "Q: So if else or maybe if then, you agree those are called conditional statements in programming?
>
> A: It depends how they're used. ***But that that would be common, yes***.
>
> Q: Why are they called conditional statements?
>
> A: Because under some conditions you would do one thing and under other -- sorry. Under some conditions you would do one thing, and under other conditions you would do something else, as a general concept."

(Wolfe Deposition, Page 97, Lines 12-23) (emphasis via bold italics added here).

105. The claim language "detected by the controller in which all three of the following conditions are met" indicates that the controller program must test for the conditions as TRUE or FALSE.

106. The claim language "automatically" and "during any period" requires that the controller must perform specific operations ("connect…and enable an upload") if all of those

conditions are TRUE. In other words, the claim says in prose that IF conditions 1, 2, and 3 are TRUE, THEN "connect…and enable an upload". Thus, the language in the claim itself provides a POSITA with a set of instructions or rules comprising a control program algorithm. The output of that algorithm is to perform the recited operation in the claim element, namely "connect…and enable an upload".

107. Using a methodology entirely analogous to that presented above for Claim 1 of the '472 Patent, the POSITA would recognize that Claim 5 of the '472 Patent also mandates that IF all of the recited conditions are TRUE, THEN "connect…and enable an upload." Like Claim 1, Claim 5 also includes the claim language "conditions", "automatically", and "during any period" so the discussion of that claim language above is applicable to Claim 5. And, although Claim 1 recites "detected by the controller in which all three of the following conditions are met", whereas Claim 5 recites "during any period detected by the controller in which all the following conditions are met", both recitations indicate that the controller program must test for the conditions as TRUE or FALSE.

108. Dr. Wolfe confirmed at his deposition that he understood the IF-THEN structure of '472 Patent Claim 5 that I discuss above. In particular, Dr. Wolfe testified:

> "Q: So, if all four of these conditions are met, what happens according to the claim?
>
> A: If all four of the conditions are met, according to the claim, you will automatically connect to a picture hosting service that is internet based and enable and upload to the picture hosting service over the internet and via the cellular interface of a group of image sensor captured pictures stored in the local memory…"

(excerpted from Wolfe Deposition, Page 143, Lines 12-24).

109. Now let's turn to element (f)(ii) of Claim 1 from the '761 Patent-in-suit:

"(f) a controller configured to:

…

(ii) automatically connect to a remote picture hosting service and cause an upload of one or more pictures stored in the non-volatile memory to the remote picture hosting service via the cellular interface, after receiving:

(1) data from the cellular interface used by the controller to determine that the upload is allowed based on the selected upload option,

(2) an indication that the system is connected to the internet via the cellular interface; and

(3) an indication from the local memory that a user has elected an option to designate at least one picture from the group of pictures stored in the local memory to be uploaded to the remote picture hosting service."

110. Let's begin with the portion of the claim language above that recites "a controller configured to…(ii) automatically connect…and cause an upload…after receiving." This language says that the controller performs an operation automatically upon receipt of certain returns germane to all of the requisite conditions. In logical terms, this claim language mandates an IF-THEN decision tree algorithm.

111. The claim language "automatically connect…and cause an upload" and "after receiving" indicates that the controller program must perform the operation "connect…and cause an upload" after receiving all of the inputs as TRUE. In other words, the claims say in prose that IF conditions 1, 2, and 3 are TRUE, THEN "connect…and cause an upload." Thus, the language in the claim itself provides a POSITA with a set of instructions or rules comprising a control program algorithm to perform the recited operation "connect…and cause an upload."

112. Thus, in both of the patents-in-suit, claim element (ii) provides in prose an IF-THEN conditional structure for any algorithm needed by the controller and associated componentry to carry out the claimed automatic upload operations. In these particular cases, the claims specify that IF the recited conditions are all TRUE, THEN the system is to automatically connect and upload to a picture hosting site.

113. In addition, if all conditions are met, the corresponding operation that the controller executes in '472 Patent Claim 1 and Claim 5 is "connect to a picture hosting service that is internet-based and enable an upload to the picture hosting service, over the internet and via the cellular interface, of a group of image sensor-captured pictures stored in the local memory". If all conditions are met, the corresponding operation that the controller executes in '761 Patent Claim 1 is "connect to a remote picture hosting service and cause an upload of one or more pictures stored in the non-volatile memory to the remote picture hosting service via the cellular interface". A POSITA understands that the controller would not need specialized software to perform the operations of connecting and uploading to a picture hosting site on the internet. And, each claim recites a known cellular interface structure for transmitting the pictures using existing internet protocols.

114. Furthermore, before the priority date of the patents-in-suit, the ability and associated software, instructions, or algorithms for a controller to connect to a website and transmit information existed in the art. As evidence, please consider, for example, the '472 Patent at Column 12, Lines 38-54 (emphases via italics added here), which describes that the controller of the claims can be programmed with existing technology to access picture hosting sites on the internet:

"The inventive camera system is further preferably equipped with *a microbrowser that*

> *runs on the inventive camera system's camera controller which is preferably a microprocessor*…Design and operation of microbrowser-equipped electronic devices for use with the internet is well known in the art and need not be discussed further. …So equipped, the inventive camera system can now independently upload its pictures to any of the *internet-based photo printing services, such as those provided by Walmart.com, Walgreens.com, Kodak.com, etc.*, without the need for first storing the photos to a computer system and then connecting the computer system to the internet to upload the pictures."

115. The patents also describe that the system can be combined with prior art cell phones that had programming to access the internet. As evidence, please consider, for example, the following citations appearing in the specification of the patents-in-suit:

a. "Cellular service providers typically charge a fee for internet access..." (excerpted from '472 Patent, Column 14, Lines 37-41).

b. "Another aspect of the present invention provides that prior art features of the cell phone...are combined..." (excerpted from '472 Patent, Column 13, Lines 55-58).

c. "The aspect of the invention allowing for automatic connection to a LAN or the internet is also contemplated with cell phone cameras." ('472 Patent, Column 12, Lines 32-34).

116. In short, it was known before the priority date of the patents-in-suit that the capability and associated programming for cell phones and similar structures to connect to the internet and upload data such as pictures existed in the art.

(a.) Condition (1)

117. Now, let's discuss the claimed conditions in more detail. In the '472 Patent Claim 1 condition (1) recites "the upload is allowed because the system is within one of the periods

without potentially increased cellular network access fees, as determined using data from the cellular interface". This involves the act of receiving data from the cellular interface relating to the current period. And, associated with that period might be the potential for increased cellular network access fees.

118. For instance, one type of data from the cellular interface might be whether the device is being operated in its provider's network, or if it is roaming away from its provider's network. Let's discuss roaming in more detail.

119. Whether the user is operating in his provider's network (not roaming) or out of his provider's network (roaming) is determined by the cellular service provider. Consequently, a signal is sent from the cell tower, including data (for example, the tower ID), to the cellular interface portion of the user's device, and this signal reflects roaming status. Data corresponding to this received signal is relayed to the controller as data input and enables a simple TRUE (not roaming) or FALSE (roaming) for this condition.

120. Recall that T-Mobile's expert Dr. Wolfe has agreed that a controller such as a computer or microprocessor is able to receive data. For instance, Dr. Wolfe has emphasized "A general purpose computer or microprocessor can…perform…functions (such as receiving data, storing data, and processing data)..." (excerpted from Wolfe Declaration, Paragraph 119, February 27, 2025) (parenthetical insertion in the original).

121. A POSITA understands that the controller would not need specialized software to perform the operation of using data from the cellular interface to determine if the system is within one of the periods without potentially increased cellular network access fees (e.g., not roaming). And, each claim recites a known cellular interface structure for receiving the above-described data using existing cellular network protocols.

122. Furthermore, before the priority date of the patents-in-suit, the ability and associated software, instructions, or algorithms for a controller to perform the operation of using data from the cellular interface to determine if the system is within one of the periods without potentially increased cellular network access fees (e.g., not roaming) existed in the art. Please consider, for example:

a. In my earlier Expert Declaration I stated "Data roaming fees are one example of well-known potential cellular network access fees and potentially increased cellular network access fees expressly mentioned in the intrinsic record. At the time of the invention, it was well known that uploads during data roaming may (but do not always) result in cellular network access fees incurred from sending data over the network used when roaming. Therefore, it is my opinion that a POSITA would have been well aware of the existence and significance of potential fees and of potentially increased fees relating to certain data uploads." (Expert Declaration Of David W. Hughes, *Cutting Edge Vision, L.L.C. v. TCL Technology Group Corporation, et al.*, Case No. 6:22-CV-00285-ADA, W.D. TX, Paragraph 91, December 12, 2022). I further note that T-Mobile's expert Dr. Wolfe reviewed my earlier declaration (see, Wolfe Declaration, Paragraph 18, February 27, 2025) and he did not express any disagreement with this statement.

b. During prosecution of the claims that ultimately issued in the related '116 Patent, CEV represented to the U.S. Patent & Trademark Office "Applicant's invention...offers many explicit benefits over a simple timer. For example, a simple timer for picture upload (i.e., setting the upload for 8 PM) would still result in charges to a user's account if the user is 'roaming' at the designated time that the

upload begins. In short, a timer does not adequately prevent roaming or other network charges that can be incurred during photo uploads." (excerpted from Patent Application No. 15/188,736; Amendment After Final Office Action; Page 6, Lines 20-25; December 11, 2017) (parenthetical insertion in the original). I further note that T-Mobile's expert Dr. Wolfe reviewed the file history of the application that matured into the '116 Patent (see, Wolfe Declaration, Paragraph 18, February 27, 2025) and he did not take issue with this statement.

123. Thus, the Applicant represented during prosecution that periods when the device is roaming would not be "periods without potential cellular network access fees".

124. The patents also describe that the system can be combined with prior art cell phones that had programming to perform the operation of using data from the cellular interface to determine if the system is within one of the periods without potentially increased cellular network access fees (e.g., not roaming). As evidence, please consider, for example, the following citations appearing in the specification of the patents-in-suit:

a. "...the invention contemplates the use of...cellular data networks...as the interconnection technology...used by the inventive camera system." (excerpted from '472 Patent, Column 12, Lines 34-38).

b. "Another aspect of the present invention provides that prior art features of the cell phone...are combined..." (excerpted from '472 Patent, Column 13, Lines 55-58).

c. "Cellular service providers typically charge a fee for internet access or emailing so an automatic feature to connect to the net or send email for the purposes of transmitting pictures can improve revenue generation for these companies." (excerpted from '472 Patent, Column 14, Lines 37-41).

d. "Additionally, the inventive camera system is preferably operable so that the automatic connection is made only at certain times of the day or weekends, etc., so as to confine picture transmission to periods of low network usage or periods of cheaper network access, etc." ('472 Patent, Column 13, Lines 3-7).

125. Dr. Wolfe agreed at his deposition that, in October of 2005, the programming existed for cellular devices to determine if they are roaming or not roaming. In particular, Dr. Wolfe testified:

a. "[Q]: …I'm just asking you, was it well known that users were allowed to select their home network, or can switch roaming off to prevent data upload or download if there are roaming charges before the 2005 priority date?

[A]: Again, taking that statement out of context, it sounds like it's true to me in 2005." (excerpted from Wolfe Deposition, Page 130, Line 17 through Page 131, Line 3) (clarifying material in square brackets added here).

b. "[Q]: So did programming exist in 2005 to make that type of determination, i.e. roaming or not roaming?

[A]: It existed somewhere..." (excerpted from Wolfe Deposition, Page 132, Lines 14-20) (clarifying material in square brackets added here).

(b.) Condition (2)

126. Next, let's turn to '472 Patent, Claim 1 condition (2). Condition (2) recites "the system is connected to the internet via the cellular interface".

127. Whether or not the user is connected to the internet is apparent from the system receiving internet data (connected), or failing to receive internet data (not connected). Consequently, exchange of an appropriate internet signal (including, for example, data packets)

between the cell tower and the cellular interface portion of the user's device confirms that the device is connected to and accessing the internet. Data corresponding to this received signal is relayed to the controller as data input and enables a simple TRUE (connected) or FALSE (not connected) for this condition.

128. Recall that T-Mobile's expert Dr. Wolfe has agreed that a controller such as a computer or microprocessor is able to receive data. For instance, Dr. Wolfe has emphasized "A general purpose computer or microprocessor can…perform…functions (such as receiving data, storing data, and processing data)..." (excerpted from Wolfe Declaration, Paragraph 119, February 27, 2025) (parenthetical insertion in the original).

129. Furthermore, before the priority date of the patents-in-suit, the ability and associated software, instructions, or algorithms for a controller to determine if the system is connected to the internet via the cellular interface existed in the art. As evidence, please consider, for example, the '472 Patent at Column 12, Lines 38-54 (emphases via italics added here), which describes that the controller of the claims can be programmed with existing technology to access the internet:

> "The inventive camera system is further preferably equipped with *a microbrowser that runs on the inventive camera system's camera controller which is preferably a microprocessor*…Design and operation of microbrowser-equipped electronic devices for use with the internet is well known in the art and need not be discussed further. …So equipped, the inventive camera system can now independently upload its pictures to any of the *internet-based photo printing services, such as those provided by Walmart.com, Walgreens.com, Kodak.com, etc.*, without the need for first storing the photos to a computer system and then connecting the computer system to the internet to upload the pictures."

130. The patents also describe that the system can be combined with prior art cell phones that had programming to access the internet. As evidence, please consider, for example, the following citations appearing in the specification of the patents-in-suit:

a. "Cellular service providers typically charge a fee for internet access..." (excerpted from '472 Patent, Column 14, Lines 37-41).

b. "Another aspect of the present invention provides that prior art features of the cell phone...are combined..." (excerpted from '472 Patent, Column 13, Lines 55-58).

c. "The aspect of the invention allowing for automatic connection to a LAN or the internet is also contemplated with cell phone cameras." ('472 Patent, Column 12, Lines 32-34).

(c.) Condition (3)

131. Finally, let's turn to '472 Patent Claim 1 condition (3). Condition (3) recites "at least one image sensor-captured picture stored in the local memory has been designated through the touch sensitive display as part of the group of pictures to be uploaded to the picture hosting service".

132. The "touch sensitive display" recitation in the present claim element refers to a structure that permits the user to make a selection. Such a selection might involve touching or finger-tapping a folder, a thumbnail, a menu option, an icon, or a similar input on the screen of the touch sensitive display. If something has been selected, then the image sensor-captured picture has been designated. And, data corresponding to this designation signal is relayed from the touch sensitive display to the controller as data input and enables a simple TRUE (a picture has been designated) or FALSE (a picture has not been designated) for this condition.

133. Recall that T-Mobile's expert Dr. Wolfe has agreed that a controller such as a

computer or microprocessor is able to receive data. For instance, Dr. Wolfe has emphasized "A general purpose computer or microprocessor can…perform…functions (such as receiving data, storing data, and processing data)..." (excerpted from Wolfe Declaration, Paragraph 119, February 27, 2025) (parenthetical insertion in the original).

134. Furthermore, before the priority date of the patents-in-suit, the ability and associated software, instructions, or algorithms for a touch sensitive display to relay input to a controller, and for the controller to interpret that input, existed. As evidence, please consider, for example, the following citations appearing in the specification of the patents-in-suit:

a. "Another aspect of the present invention...employs touch sensitive technology. This technology is well known in the computer art and can be any of resistive, capacitive, RF, etc touch technology. This aspect of the present invention allows the user to interact with menus, features and functions displayed on the LCD display directly rather than through ancillary buttons or cursor control." (excerpted from '472 Patent, Column 7, Lines 17-25).

b. "Preferably, as mentioned earlier, the display is touch sensitive using any of the touch sensitive technology well understood in the art such as resistive, capacitive, RF, etc., methods mentioned above. Touch commands input by the user would be coupled back to the camera system as needed." ('472 Patent, Column 7, Lines 45-49).

c. "Still another contemplated embodiment applies the touch gesture recognition typically used with the computer-like touchpad technology to a touch sensitive display, such as the touch sensitive LCD of the camera and other devices herein disclosed that utilize an LCD display. Combining various aspects of the invention

herein disclosed, such as voice recognition, touch input, gaze tracking, etc for camera control provides much more natural and human interfacing to the camera system for the control of camera menus, camera features, camera options, camera settings, commanding picture taking, enabling flash, etc." ('472 Patent, Column 14, Line 62 to Column 15, Line 6).

d. "Another aspect of the present invention incorporates touchpad technology which is typically used in laptop computers, such technology being well know[n] in the art..." (excerpted from '472 Patent, Column 2, Lines 22-25) (clarification in square brackets added here).

e. "This touchpad technology is similar to the touchpad mouse pad used on laptop computers which is also well understood in the computer art." ('472 Patent, Column 9, Lines 37-39).

f. "It is also preferred that the touchpad software implement 'tapping' recognition, also well known in the art, so that the user may...make a selection...simply by tapping the touchpad with his index finger, much the same way modern laptop driver software recognizes tapping of the touchpad as a click of the mouse button." (excerpted from '472 Patent, Column 9, Lines 46-52).

g. "Additionally, the touchpad...would be a much cheaper input gathering structure and would replace some or all of the many buttons...of the cell phone..." (excerpted from '472 Patent, Column 15, Lines 56-62).

h. "While a computer-like touchpad was used to illustrate the above preferred embodiments of this aspect of the invention, the touch sensitive input device could be comprised of other structure, for instance, the aforementioned touch-sensitive

LCD display." (excerpted from '472 Patent, Column 10 Lines 15-19).

135. Dr. Wolfe agreed at his deposition that, in October of 2005, the programming existed for a touch sensitive display to determine where the screen has been touched, and translate that information for a CPU or other controller. In addition, Dr. Wolfe agreed the programming existed for a CPU or other controller to receive the translated information. In particular, Dr. Wolfe testified:

a. "A: That means that in prior art touch screens, there would be a touch screen controller which would measure signals from a touch screen sensor and generally inform a CPU about those signals by translating the measurements into a more usable form that the CPU could interpret. Typically where and when the touch had occurred.

Q: What format was it translated to for the CPU?

A: It would vary. Typically some descriptive message. That would say something like there's been a new touch at this X coordinate and this Y coordinate." (Wolfe Deposition, Page 119, Lines 12-24).

b. "A: For touch screens that existed in 2005, they included algorithms that would format the data and present it to a host computer or a main CPU." (Wolfe Deposition, Page 122, Lines 4-7).

c. "Q: But certainly in 2005, algorithms existed to figure out where a user is touching a touch screen. Would you agree with that?

A: Those algorithms did exist. There were many different kinds…" (excerpted from Wolfe Deposition, Page 114, Lines 4-10).

d. "Q: "…I realize you could construct an algorithm, but let's say if I wanted to select from an existing algorithm, per se, I've displayed a button on my screen, did the user

select it or not select it? Was that existing algorithm there and available as of 2005?

A: There were a number of existing algorithms. Depending on the specifics, you would have to choose one…" (excerpted from Wolfe Deposition, Page 115, Lines 2-19).

136. Dr. Wolfe also agreed at his deposition that, in October of 2005, touch screens were used for inputting data in a variety of devices, including handheld devices such as mobile phones and cameras. In particular, Dr. Wolfe testified:

"Q: So have you kind of amended this to say touch screens are used for inputting data in a variety of electronic devices, including handheld devices such as mobile phones and cameras. You amended it to say that in 2005. Would that be accurate?

A: I think it would."

(Wolfe Deposition, Page 118, Lines 14-20).

137. Although the exact claim language is not the same, my analysis of the conditions recited in '472 Patent Claim 1 is similarly applicable to the conditions set forth in '472 Patent Claim 5 and '761 Patent Claim 1. In particular, my analysis of condition (1) in '472 Patent Claim 1 above applies to condition (2) in '472 Patent Claim 5 and condition (1) in '761 Patent Claim 1. My analysis of condition (2) in '472 Patent Claim 1 above applies to condition (3) in '472 Patent Claim 5 and condition (2) in '761 Patent Claim 1. My analysis of condition (3) in '472 Patent Claim 1 above applies to condition (4) in '472 Patent Claim 5 and condition (3) in '761 Patent Claim 1. And, my analysis of condition (1) in '472 Patent Claim 5 is addressed in this declaration below.

138. In his declaration, T-Mobile's expert Dr. Wolfe makes the following assertions:

a. "A controller does not automatically connect to anything absent specialized software and algorithms." (Wolfe Declaration, Paragraph 130).

b. "I have reviewed the asserted claims of the '462 [sic-'472-?] and '761 Patents, and it is my opinion that they require a 'controller' to perform a number of specialized functions, including...automatically connecting to a picture hosting website..." (excerpted from Wolfe Declaration, Paragraph 84) (clarifying material in square brackets added here).

139. Dr. Wolfe incorrectly asserts specialized software for the controller is absent from the claim. However, my explanation in this present declaration explaining the IF-THEN structure of the claims, and addressing the related conditions, shows that each claim itself recites the structure of any specialized software the controller uses for automatically uploading.

(d.) Claim Element (f)(i)

140. Now, please consider element (f)(i) of Claim 1 from the '472 Patent-in-suit.

"(f) a controller coupled to the cellular interface, the non-volatile local memory and the touch sensitive display, and configured to:

(i) receive, via the touch sensitive display, a user selection of an upload option that instructs the camera system to confine automatic picture upload to periods without potentially increased cellular network access fees"

141. The above claim language provided in element (i) details structure for aspects of the operations to be carried out. In particular, the cellular interface, the non-volatile local memory, and the touch sensitive display are all hardware structures that provide data for the controller to receive.

142. The "touch sensitive display" recitation in the present claim element refers to a structure that permits the user to make a selection. Such a selection might involve touching or finger-tapping a button, a menu option, an icon, or a similar input on the screen of the touch

sensitive display. If the upload option has been selected, then the camera system is instructed to confine automatic picture upload to periods without potentially increased cellular network access fees. And, data corresponding to this selection is relayed from the touch sensitive display to the controller as data input and enables a simple TRUE (picture uploading is to be confined to periods without potentially increased cellular network access fees) or FALSE (picture uploading is not confined to periods without potentially increased cellular network access fees).

143. Notice the claim language for (f)(i) of '472 Patent Claim 1 recites "instructs the camera system to confine automatic picture upload to periods without potentially increased cellular network access fees." Also notice that condition (1) in (f)(ii) recites "(1) the upload is allowed because the system is within one of the periods without potentially increased cellular network access fees, as determined using data from the cellular interface." The claim language "instructs the camera system to confine automatic picture upload" is a reference to the upload option instructing the controller that automatic uploads should be restricted to periods without potentially increased cellular network access fees. In particular, if the option or input on the touch-sensitive display in (f)(i) is selected to confine automatic uploads, then element (f)(ii) describes the IF-THEN program and conditions required for upload, including that "the upload is allowed" because the device is not in a restricted upload period (such as a roaming period). Stated another way, the claimed "confin[ing]" in element (i) simply requires a user-selected input that will (if TRUE) allow the conditional program of (f)(ii) to run to completion.

144. Recall that T-Mobile's expert Dr. Wolfe has agreed that a controller such as a computer or microprocessor is able to receive data. For instance, Dr. Wolfe has emphasized "A general purpose computer or microprocessor can…perform…functions (such as receiving data, storing data, and processing data)..." (excerpted from Wolfe Declaration, Paragraph 119, February

27, 2025) (parenthetical insertion in the original).

145. Furthermore, as also detailed above, before the priority date of the patents-in-suit, the ability and associated software, instructions, or algorithms for a touch sensitive display to relay input to a controller, and for a controller to interpret that input, existed. As evidence, please consider, for example, the following citations appearing in the specification of the patents-in-suit:

a. "Another aspect of the present invention...employs touch sensitive technology. This technology is well known in the computer art and can be any of resistive, capacitive, RF, etc touch technology. This aspect of the present invention allows the user to interact with menus, features and functions displayed on the LCD display directly rather than through ancillary buttons or cursor control." (excerpted from '472 Patent, Column 7, Lines 17-25).

b. "Preferably, as mentioned earlier, the display is touch sensitive using any of the touch sensitive technology well understood in the art such as resistive, capacitive, RF, etc., methods mentioned above. Touch commands input by the user would be coupled back to the camera system as needed." ('472 Patent, Column 7, Lines 45-49).

c. "Still another contemplated embodiment applies the touch gesture recognition typically used with the computer-like touchpad technology to a touch sensitive display, such as the touch sensitive LCD of the camera and other devices herein disclosed that utilize an LCD display. Combining various aspects of the invention herein disclosed, such as voice recognition, touch input, gaze tracking, etc for camera control provides much more natural and human interfacing to the camera system for the control of camera menus, camera features, camera options, camera

settings, commanding picture taking, enabling flash, etc." ('472 Patent, Column 14, Line 62 to Column 15, Line 6).

d. "Another aspect of the present invention incorporates touchpad technology which is typically used in laptop computers, such technology being well know[n] in the art..." (excerpted from '472 Patent, Column 2, Lines 22-25) (clarification in square brackets added here).

e. "This touchpad technology is similar to the touchpad mouse pad used on laptop computers which is also well understood in the computer art." ('472 Patent, Column 9, Lines 37-39).

f. "It is also preferred that the touchpad software implement 'tapping' recognition, also well known in the art, so that the user may...make a selection...simply by tapping the touchpad with his index finger, much the same way modern laptop driver software recognizes tapping of the touchpad as a click of the mouse button." (excerpted from '472 Patent, Column 9, Lines 46-52).

g. "Additionally, the touchpad...would be a much cheaper input gathering structure and would replace some or all of the many buttons...of the cell phone..." (excerpted from '472 Patent, Column 15, Lines 56-62).

h. "While a computer-like touchpad was used to illustrate the above preferred embodiments of this aspect of the invention, the touch sensitive input device could be comprised of other structure, for instance, the aforementioned touch-sensitive LCD display." (excerpted from '472 Patent, Column 10 Lines 15-19).

146. Dr. Wolfe agreed at his deposition that, in October of 2005, the programming existed for a touch sensitive display to determine where the screen has been touched, and translate

that information for a CPU or other controller. In addition, Dr. Wolfe agreed the programming existed for a CPU or other controller to receive the translated information. In particular, Dr. Wolfe testified:

a. "A: That means that in prior art touch screens, there would be a touch screen controller which would measure signals from a touch screen sensor and generally inform a CPU about those signals by translating the measurements into a more usable form that the CPU could interpret. Typically where and when the touch had occurred.

   Q: What format was it translated to for the CPU?

   A: It would vary. Typically some descriptive message. That would say something like there's been a new touch at this X coordinate and this Y coordinate." (Wolfe Deposition, Page 119, Lines 12-24).

b. "A: For touch screens that existed in 2005, they included algorithms that would format the data and present it to a host computer or a main CPU." (Wolfe Deposition, Page 122, Lines 4-7).

c. "Q: But certainly in 2005, algorithms existed to figure out where a user is touching a touch screen. Would you agree with that?

   A: Those algorithms did exist. There were many different kinds…" (excerpted from Wolfe Deposition, Page 114, Lines 4-10).

d. "Q: "…I realize you could construct an algorithm, but let's say if I wanted to select from an existing algorithm, per se, I've displayed a button on my screen, did the user select it or not select it? Was that existing algorithm there and available as of 2005?

   A: There were a number of existing algorithms. Depending on the specifics, you would have to choose one…" (excerpted from Wolfe Deposition, Page 115, Lines 2-19).

147. Dr. Wolfe also agreed at his deposition that, in October of 2005, touch screens were used for inputting data for a variety of devices, including handheld devices such as mobile phones and cameras. In particular, Dr. Wolfe testified:

> "Q: So have you kind of amended this to say touch screens are used for inputting data in a variety of electronic devices, including handheld devices such as mobile phones and cameras. You amended it to say that in 2005. Would that be accurate?
>
> A: I think it would."

(Wolfe Deposition, Page 118, Lines 14-20).

148. Although the exact claim language is not the same, my analysis of (f)(i) in '472 Patent Claim 1 is similarly applicable to '472 Patent Claim 5 element (f)(i) in combination with condition (1). In particular '472 Patent Claim 5 recites "(i) display on the touch sensitive display a user-selectable input that instructs the camera system to confine automatic picture upload to periods without potentially increased cellular network access fees" and "(1) the controller has received from the display a selection of the user-selectable input that instructs the camera system to confine automatic picture uploads to periods without potentially increased cellular network access fees." Notice that element (f)(i) in '472 Patent Claim 5 recites displaying the user-selectable input that instructs the camera system to confine automatic picture upload, and condition (1) recites checking that the input has been selected and returning TRUE (if selected) or FALSE (if not selected). Stated another way, element (f)(ii) recites displaying the user-selectable input that instructs the camera system, while condition (1) simply requires the controller to test if that user-selectable input has been selected. If that user-selectable input has been selected, condition (1) is TRUE.

149. And, although the exact claim language is not the same, my analysis of (f)(i) in

'472 Patent Claim 1 is similarly applicable to '761 Patent Claim 1 element (f)(i) in combination with condition (1). In particular '761 Patent Claim 1 recites "(i) receive, via the touch sensitive display, a user selection of an upload option that instructs the device to confine automatic picture upload to periods without potential cellular network access fees" and "(1) data from the cellular interface used by the controller to determine that the upload is allowed based on the selected upload option." Notice that element (f)(i) in '761 Patent Claim 1 recites receiving a user selection of an upload option that instructs the device to confine automatic picture upload, and condition (1) recites checking data from the cellular interface against the selected upload option. The claim language "instructs the device to confine automatic picture upload" is a reference to the upload option instructing the controller that automatic uploads should be restricted to periods without potential cellular network access fees. Condition (1) also refers back to "the selected upload option" in element (f)(i) and requires the controller to "to determine that the upload is allowed." Thus, if the option or input on the touch-sensitive display in (f)(i) is selected to confine automatic uploads, then element (f)(ii) describes the IF-THEN program and conditions required for upload, including that the upload must be "allowed based on the selected upload option" (e.g., not in a roaming period). Stated another way, the claimed "confin[ing]" in element (i) simply requires a user-selected input that will (if TRUE) allow the conditional program of (f)(ii) to run to completion.

150. I also note that in his declaration, T-Mobile's expert Dr. Wolfe states:

> "I have reviewed the asserted claims of the '462 and '761 Patents, and it is my opinion that they require a 'controller' to perform a number of specialized functions, including (1) confining automatic uploads of photos to particular periods when there are not potential network access fees or potentially increased cellular network access fees..." (excerpted

from Wolfe Declaration, Paragraph 84) (parenthetical insertion in the original).

151. However as shown in this declaration above, Dr. Wolfe's description of "confining" (as appears in claim element (f)(i)) requiring "specialized functions" is wrong.

152. As explained earlier, to one of skill in the art, the structure of computer software may be understood through, for example, an outline of an algorithm, a flowchart, or a specific set of instructions or rules. And, as also explained above, in the present situation, the instructions, rules, or algorithm of any specialized software for the claimed operations are detailed in the express language of the asserted claims themselves. For the convenience of the Court, and as an alternative presentation of the instructions that are specified in the patent claims, please find attached as Exhibit 2 a flowchart-type alternative presentation of these same instructions or rules. The flowchart reflects the actual words of the corresponding asserted claim. The flowchart demonstrates that the "conditions" expressly recited in the claim are TRUE-FALSE tests. If all are TRUE, then the upload operation happens.

153. I have also been advised by counsel that the requisite structure may be provided by describing the claim limitation's operation, such as its input, output, or connections.

154. As discussed in detail in this declaration, each asserted claim recites that a controller receives inputs that are output from a touch sensitive display, a cellular interface, and a non-volatile memory. And each asserted claim also recites an image sensor that stores pictures in the non-volatile memory.

155. As discussed in detail in this declaration, each asserted claim recites the connections amongst the controller, the touch sensitive display, the cellular interface, and the non-volatile memory, and the image sensor. As discussed above, each asserted claim also recites the structure of a detailed IF-THEN program that operationally connects these hardware elements to each other

and describes how they work together to carry out each operation.

156. As discussed in detail in this declaration, each asserted claim describes its output ("a group of image sensor-captured pictures stored in the local memory") ('472 Patent Claims 1 and 5) or "one or more pictures stored in the non-volatile memory" ('761 Patent Claim 1)) including the hardware (in particular, the controller and the cellular interface) used to send that output, and recites its output destination (a "picture hosting service").

157. Dr. Wolfe testified at his deposition:

> "A: So in general, an algorithm is a detailed description of a process where you describe the steps to be taken, the sequence of steps, the conditions under which certain steps should be performed, and the data that should be evaluated in performing those steps and the results that should be provided….".

(excerpted from Wolfe Deposition, Page 113, Lines 5-20).

158. Note that the asserted claims of the patents-in-suit set forth structure that meets Dr. Wolfe's definition of an algorithm. In particular, and as shown in this present declaration, the patent claims describe the steps to be taken, the sequence of steps, the conditions under which certain steps should be performed, and the data that should be evaluated in performing those steps and the results that should be provided.

VII. The Specification Discloses The Algorithms Necessary For The Recited Operations

159. In the alternative, should the Court find that "controller" is a means-plus-function element, it is my opinion that the patent specification describes the structure that performs the claimed functions, and also sufficiently connects that structure to those claimed functions.

160. I have been instructed by counsel that only in situations where both (1) a claim term is determined to be means-plus-function, despite not reciting the word "means", and (2) the

function of that term requires implementation in a special purpose computer, the specification must disclose an algorithm for performing the claimed function.

161. I have been instructed by counsel that the algorithm may be expressed as a mathematical formula, in prose, or as a flowchart, or in any other manner that provides sufficient structure.

162. I have been instructed by counsel that for the algorithm requirement, the amount of detail that must be included in the specification depends on the subject matter that is described and its role in the invention as a whole, in view of the existing knowledge in the field of the invention.

163. I have been instructed by counsel that for functions that are coextensive with the structure disclosed, such as a general purpose processor, it is not necessary to disclose more structure than the general purpose processor that performs those functions.

164. In the patents-in-suit, the specification describes in prose the structure of a conditional program for automatically connecting and uploading. As evidence, please consider, for example, the following citations appearing in the specification of the patents-in-suit:

a. "Another aspect of the present invention provides for simpler photo *offloading* from the modern digital camera *when a set of predetermined conditions*, such as day, time, number of pictures to offload, etc., *are met*." ('472 Patent, Column 11, Line 67 through Column 12, Line 25) (emphases in italics added here).

b. "In an enhancement to the above-disclosed embodiments of this aspect of the invention, the inventive camera system is operable for being instructed to *automatically initiate a connection to the internet*, LAN, printer, etc. *whenever the predetermined conditions are met* and it is in range of the network connection…" (excerpted from '472 Patent, Column 12, Line 63 through Column 13, Line 1)

(emphases in italics added here).

c. "As an example, *automatically connecting to the internet when a set of predetermined rules or conditions* (such as time, date, status of equipment, etc) *is met* would be useful for the download/upload of information from/to the internet, like music, video, etc. for processing, storage, transmission to another party, etc." ('472 Patent, Column 16, Lines 58-63) (emphases in italics added here).

165. As shown in the excerpts from the specification reproduced above, the specification describes that the system can be programmed with a "set of predetermined conditions" or "rules." In addition, the specification describes that the system is "instructed to automatically initiate a connection to the internet" and "offload" pictures whenever those predetermined conditions or rules are met.

166. Furthermore, a POSITA reading the excerpts from the specification reproduced above would understand that the algorithm provided for automatic upload is an IF-THEN conditional program. The words "predetermined conditions" or "rules", together with the word "automatically", indicate that the controller is testing a set of conditions and then carrying out operations if those conditions are met. Further, the word "automatically" indicates that the controller is testing for the conditions, rather than a user. And the phrase "predetermined rules or conditions" means that the controller is pre-programmed with the conditions that are to be tested. In other words, the specification says in prose the following algorithm: IF the recited predetermined conditions are TRUE, THEN connect to the internet and upload.

167. For the remaining operations recited in the claims, a POSITA would recognize that no specialized software or corresponding algorithm is necessary.

168. For example, if all conditions are met, the corresponding operation that the

controller executes in '472 Patent Claim 1 and Claim 5 is "connect to a picture hosting service that is internet-based and enable an upload to the picture hosting service, over the internet and via the cellular interface, of a group of image sensor-captured pictures stored in the local memory." If all conditions are met, the corresponding operation that the controller executes in '761 Patent Claim 1 is "connect to a remote picture hosting service and cause an upload of one or more pictures stored in the non-volatile memory to the remote picture hosting service via the cellular interface."

169. A POSITA understands that the controller would not need specialized software or algorithms to perform the operations of connecting and uploading to a picture hosting site on the internet. In particular, a POSITA would recognize that existing controllers perform that operation, using known internet protocols and cellular technologies, such as the cellular interface.

170. Furthermore, before the priority date of the patents-in-suit, the ability and associated software, instructions, or algorithms for a controller to connect to a website and transmit information existed in the art. As evidence, please consider, for example, the '472 Patent at Column 12, Lines 38-54 (emphases via italics added here), which describes that the controller of the claims can be programmed with existing technology to access picture hosting sites on the internet:

> "The inventive camera system is further preferably equipped with *a microbrowser that runs on the inventive camera system's camera controller which is preferably a microprocessor*…Design and operation of microbrowser-equipped electronic devices for use with the internet is well known in the art and need not be discussed further. …So equipped, the inventive camera system can now independently upload its pictures to any of the *internet-based photo printing services, such as those provided by Walmart.com, Walgreens.com, Kodak.com, etc.*, without the need for first storing the photos to a computer

system and then connecting the computer system to the internet to upload the pictures."

171. The patents also describe that the system can be combined with prior art cell phones that had programming to access the internet. As evidence, please consider, for example, the following citations appearing in the specification of the patents-in-suit:

a. "Cellular service providers typically charge a fee for internet access..." (excerpted from '472 Patent, Column 14, Lines 37-41).

b. "Another aspect of the present invention provides that prior art features of the cell phone...are combined..." (excerpted from '472 Patent, Column 13, Lines 55-58).

c. "The aspect of the invention allowing for automatic connection to a LAN or the internet is also contemplated with cell phone cameras." ('472 Patent, Column 12, Lines 32-34).

172. In short, it was known before the priority date of the patents-in-suit that the capability and associated programming and algorithms for cell phones and similar structures to connect to the internet and upload data such as pictures existed in the art.

(a.) Condition (1)

173. Now, let's discuss the claimed conditions in more detail. In the '472 Patent Claim 1 condition (1) recites "the upload is allowed because the system is within one of the periods without potentially increased cellular network access fees, as determined using data from the cellular interface". This involves the act of receiving data from the cellular interface relating to the current period. And, associated with that period might be the potential for increased cellular network access fees.

174. Whether the user is operating in his provider's network (not roaming) or out of his provider's network (roaming) is determined by the cellular service provider. Consequently, a

signal is sent from the cell tower including data, (for example, the tower ID), to the cellular interface portion of the user's device, and this signal reflects roaming status. Data corresponding to this received signal is relayed to the controller as data input and enables a simple TRUE (not roaming) or FALSE (roaming) for this condition.

175. Recall that T-Mobile's expert Dr. Wolfe has agreed that a controller such as a computer or microprocessor is able to receive data. For instance, Dr. Wolfe has emphasized "A general purpose computer or microprocessor can…perform…functions (such as receiving data, storing data, and processing data)..." (excerpted from Wolfe Declaration, Paragraph 119, February 27, 2025) (parenthetical insertion in the original).

176. As a result, a POSITA understands that the controller would not need specialized software or algorithms to perform the operation of using data from the cellular interface to determine if the system is within one of the periods without potentially increased cellular network access fees (e.g., not roaming).

177. Furthermore, before the priority date of the patents-in-suit, the ability and associated software, instructions, or algorithms for a controller to perform the operation of using data from the cellular interface to determine if the system is within one of the periods without potentially increased cellular network access fees (e.g., not roaming) existed in the art. Please consider, for example:

a. In my earlier Expert Declaration I stated "Data roaming fees are one example of well-known potential cellular network access fees and potentially increased cellular network access fees expressly mentioned in the intrinsic record. At the time of the invention, it was well known that uploads during data roaming may (but do not always) result in cellular network access fees incurred from sending data over the

network used when roaming. Therefore, it is my opinion that a POSITA would have been well aware of the existence and significance of potential fees and of potentially increased fees relating to certain data uploads." (Expert Declaration Of David W. Hughes, *Cutting Edge Vision, L.L.C. v. TCL Technology Group Corporation, et al.*, Case No. 6:22-CV-00285-ADA, W.D. TX, Paragraph 91, December 12, 2022). I further note that T-Mobile's expert Dr. Wolfe reviewed my earlier declaration (see, Wolfe Declaration, Paragraph 18, February 27, 2025) and he did not express any disagreement with this statement.

b. During prosecution of the claims that ultimately issued in the related '116 Patent, CEV represented to the U.S. Patent & Trademark Office "Applicant's invention...offers many explicit benefits over a simple timer. For example, a simple timer for picture upload (i.e., setting the upload for 8 PM) would still result in charges to a user's account if the user is 'roaming' at the designated time that the upload begins. In short, a timer does not adequately prevent roaming or other network charges that can be incurred during photo uploads." (excerpted from Patent Application No. 15/188,736; Amendment After Final Office Action; Page 6, Lines 20-25; December 11, 2017) (parenthetical insertion in the original). I further note that T-Mobile's expert Dr. Wolfe reviewed the file history of the application that matured into the '116 Patent (see, Wolfe Declaration, Paragraph 18, February 27, 2025) and he did not take issue with this statement.

178. Thus, the Applicant represented during prosecution that periods when the device is roaming would not be "periods without potential cellular network access fees".

179. The patents also describe that the system can be combined with prior art cell phones

that had programming to perform the operation of using data from the cellular interface to determine if the system is within one of the periods without potentially increased cellular network access fees (e.g., not roaming). As evidence, please consider, for example, the following citations appearing in the specification of the patents-in-suit:

a. "...the invention contemplates the use of...cellular data networks...as the interconnection technology...used by the inventive camera system." (excerpted from '472 Patent, Column 12, Lines 34-38).

b. "Another aspect of the present invention provides that prior art features of the cell phone...are combined..." (excerpted from '472 Patent, Column 13, Lines 55-58).

c. "Cellular service providers typically charge a fee for internet access or emailing so an automatic feature to connect to the net or send email for the purposes of transmitting pictures can improve revenue generation for these companies." (excerpted from '472 Patent, Column 14, Lines 37-41).

d. "Additionally, the inventive camera system is preferably operable so that the automatic connection is made only at certain times of the day or weekends, etc., so as to confine picture transmission to periods of low network usage or periods of cheaper network access, etc." ('472 Patent, Column 13, Lines 3-7).

180. Dr. Wolfe agreed at his deposition that, in October of 2005, the programming existed for cellular devices to determine if they are roaming or not roaming. In particular, in his deposition Dr. Wolfe testified:

a. "[Q]: …I'm just asking you, was it well known that users were allowed to select their home network, or can switch roaming off to prevent data upload or download if there are roaming charges before the 2005 priority date?

[A]: Again, taking that statement out of context, it sounds like it's true to me in 2005." (excerpted from Wolfe Deposition, Page 130, Line 17 through Page 131, Line 3) (clarifying material in square brackets added here).

b. "[Q]: So did programming exist in 2005 to make that type of determination, i.e. roaming or not roaming?

[A]: It existed somewhere..." (excerpted from Wolfe Deposition, Page 132, Lines 14-20) (clarifying material in square brackets added here).

181. In short, it was known before the priority date of the patents-in-suit that the capability and associated programming and algorithms for cell phones and similar structures to determine if the system is within one of the periods without potentially increased cellular network access fees (e.g., not roaming) existed in the art.

(b.) Condition (2)

182. Next, let's turn to '472 Patent, Claim 1 condition (2). Condition (2) recites "the system is connected to the internet via the cellular interface".

183. Whether or not the user is connected to the internet is apparent from the system receiving internet data (connected), or failing to receive internet data (not connected). Consequently, exchange of an appropriate internet signal (including, for example, data packets) between the cell tower and the cellular interface portion of the user's device confirms that the device is connected to and accessing the internet. Data corresponding to this received signal is relayed to the controller as data input and enables a simple TRUE (connected) or FALSE (not connected) for this condition.

184. Recall that T-Mobile's expert Dr. Wolfe has agreed that a controller such as a computer or microprocessor is able to receive data. For instance, Dr. Wolfe has emphasized "A

general purpose computer or microprocessor can…perform…functions (such as receiving data, storing data, and processing data)...” (excerpted from Wolfe Declaration, Paragraph 119, February 27, 2025) (parenthetical insertion in the original).

185. As such, a POSITA understands that the controller would not need specialized software or algorithms to perform the operation of determining that the system is connected to the internet via the cellular interface.

186. Furthermore, before the priority date of the patents-in-suit, the ability and associated software, instructions, or algorithms for a controller to determine if the system is connected to the internet via the cellular interface existed in the art. As evidence, please consider, for example, the ’472 Patent at Column 12, Lines 38-54 (emphases via italics added here), which describes that the controller of the claims can be programmed with existing technology to access the internet:

> “The inventive camera system is further preferably equipped with *a microbrowser that runs on the inventive camera system’s camera controller which is preferably a microprocessor*…Design and operation of microbrowser-equipped electronic devices for use with the internet is well known in the art and need not be discussed further. …So equipped, the inventive camera system can now independently upload its pictures to any of the *internet-based photo printing services, such as those provided by Walmart.com, Walgreens.com, Kodak.com, etc.*, without the need for first storing the photos to a computer system and then connecting the computer system to the internet to upload the pictures.”

187. The patents also describe that the system can be combined with prior art cell phones that had programming to access the internet. As evidence, please consider, for example, the following citations appearing in the specification of the patents-in-suit:

a. "Cellular service providers typically charge a fee for internet access..." (excerpted from '472 Patent, Column 14, Lines 37-41).

b. "Another aspect of the present invention provides that prior art features of the cell phone...are combined..." (excerpted from '472 Patent, Column 13, Lines 55-58).

c. "The aspect of the invention allowing for automatic connection to a LAN or the internet is also contemplated with cell phone cameras." ('472 Patent, Column 12, Lines 32-34).

(c.) Condition (3)

188. Finally, let's turn to '472 Patent Claim 1 condition (3). Condition (3) recites "at least one image sensor-captured picture stored in the local memory has been designated through the touch sensitive display as part of the group of pictures to be uploaded to the picture hosting service".

189. The "touch sensitive display" recitation in the present claim element refers to a structure that permits the user to make a selection. Such a selection might involve touching or finger-tapping a folder, a thumbnail, a menu option, an icon, or a similar input on the screen of the touch sensitive display. If something has been selected, then the image sensor-captured picture has been designated. And, data corresponding to this designation signal is relayed from the touch sensitive display to the controller as data input and enables a simple TRUE (a picture has been designated) or FALSE (a picture has not been designated) for this condition.

190. Recall that T-Mobile's expert Dr. Wolfe has agreed that a controller such as a computer or microprocessor is able to receive data. For instance, Dr. Wolfe has emphasized "A general purpose computer or microprocessor can…perform…functions (such as receiving data, storing data, and processing data)..." (excerpted from Wolfe Declaration, Paragraph 119, February

27, 2025) (parenthetical insertion in the original).

191. As such, a POSITA understands that the controller would not need specialized software or algorithms to perform the operation of receiving a designation through the touch sensitive display.

192. Furthermore, before the priority date of the patents-in-suit, the ability and associated software, instructions, or algorithms for a touch sensitive display to relay input to a controller, and for a controller to interpret that input, existed. As evidence, please consider, for example, the following citations appearing in the specification of the patents-in-suit:

a. "Another aspect of the present invention...employs touch sensitive technology. This technology is well known in the computer art and can be any of resistive, capacitive, RF, etc touch technology. This aspect of the present invention allows the user to interact with menus, features and functions displayed on the LCD display directly rather than through ancillary buttons or cursor control." (excerpted from '472 Patent, Column 7, Lines 17-25).

b. "Preferably, as mentioned earlier, the display is touch sensitive using any of the touch sensitive technology well understood in the art such as resistive, capacitive, RF, etc., methods mentioned above. Touch commands input by the user would be coupled back to the camera system as needed." ('472 Patent, Column 7, Lines 45-49).

c. "Still another contemplated embodiment applies the touch gesture recognition typically used with the computer-like touchpad technology to a touch sensitive display, such as the touch sensitive LCD of the camera and other devices herein disclosed that utilize an LCD display. Combining various aspects of the invention

herein disclosed, such as voice recognition, touch input, gaze tracking, etc for camera control provides much more natural and human interfacing to the camera system for the control of camera menus, camera features, camera options, camera settings, commanding picture taking, enabling flash, etc." ('472 Patent, Column 14, Line 62 to Column 15, Line 6).

d. "Another aspect of the present invention incorporates touchpad technology which is typically used in laptop computers, such technology being well know[n] in the art..." (excerpted from '472 Patent, Column 2, Lines 22-25) (clarification in square brackets added here).

e. "This touchpad technology is similar to the touchpad mouse pad used on laptop computers which is also well understood in the computer art." ('472 Patent, Column 9, Lines 37-39).

f. "It is also preferred that the touchpad software implement 'tapping' recognition, also well known in the art, so that the user may...make a selection...simply by tapping the touchpad with his index finger, much the same way modern laptop driver software recognizes tapping of the touchpad as a click of the mouse button." (excerpted from '472 Patent, Column 9, Lines 46-52).

g. "Additionally, the touchpad...would be a much cheaper input gathering structure and would replace some or all of the many buttons...of the cell phone..." (excerpted from '472 Patent, Column 15, Lines 56-62).

h. "While a computer-like touchpad was used to illustrate the above preferred embodiments of this aspect of the invention, the touch sensitive input device could be comprised of other structure, for instance, the aforementioned touch-sensitive

LCD display." (excerpted from '472 Patent, Column 10 Lines 15-19).

193. Dr. Wolfe agreed at his deposition that, in October of 2005, the programming existed for a touch sensitive display to determine where the screen has been touched, and translate that information for a CPU or other controller. In addition, Dr. Wolfe agreed the programming existed for a CPU or other controller to receive the translated information. In particular, Dr. Wolfe testified:

a. "A: That means that in prior art touch screens, there would be a touch screen controller which would measure signals from a touch screen sensor and generally inform a CPU about those signals by translating the measurements into a more usable form that the CPU could interpret. Typically where and when the touch had occurred.

Q: What format was it translated to for the CPU?

A: It would vary. Typically some descriptive message. That would say something like there's been a new touch at this X coordinate and this Y coordinate." (Wolfe Deposition, Page 119, Lines 12-24).

b. "A: For touch screens that existed in 2005, they included algorithms that would format the data and present it to a host computer or a main CPU." (Wolfe Deposition, Page 122, Lines 4-7).

c. "Q: But certainly in 2005, algorithms existed to figure out where a user is touching a touch screen. Would you agree with that?

A: Those algorithms did exist. There were many different kinds…" (excerpted from Wolfe Deposition, Page 114, Lines 4-10).

d. "Q: "…I realize you could construct an algorithm, but let's say if I wanted to select from an existing algorithm, per se, I've displayed a button on my screen, did the user

select it or not select it? Was that existing algorithm there and available as of 2005?

A: There were a number of existing algorithms. Depending on the specifics, you would have to choose one…" (excerpted from Wolfe Deposition, Page 115, Lines 2-19).

194. Dr. Wolfe also agreed at his deposition that, in October of 2005, touch screens were used for inputting data for a variety of devices, including handheld devices such as mobile phones and cameras. In particular, Dr. Wolfe testified:

"Q: So have you kind of amended this to say touch screens are used for inputting data in a variety of electronic devices, including handheld devices such as mobile phones and cameras. You amended it to say that in 2005. Would that be accurate?

A: I think it would."

(Wolfe Deposition, Page 118, Lines 14-20).

195. Although the exact claim language is not the same, my analysis of any algorithms relating to the conditions recited in '472 Patent Claim 1 is similarly applicable to the conditions set forth in '472 Patent Claim 5 and '761 Patent Claim 1. In particular, my analysis of condition (1) in '472 Patent Claim 1 above applies to condition (2) in '472 Patent Claim 5 and condition (1) in '761 Patent Claim 1. My analysis of condition (2) in '472 Patent Claim 1 above applies to condition (3) in '472 Patent Claim 5 and condition (2) in '761 Patent Claim 1. My analysis of condition (3) in '472 Patent Claim 1 above applies to condition (4) in '472 Patent Claim 5 and condition (3) in '761 Patent Claim 1. And, my analysis of condition (1) in '472 Patent Claim 5 is addressed elsewhere in this present declaration.

(d.) Claim Element (f)(i)

196. Now, please consider element (f)(i) of Claim 1 from the '472 Patent-in-suit:

"(f) a controller coupled to the cellular interface, the non-volatile local memory and the

touch sensitive display, and configured to:

(i) receive, via the touch sensitive display, a user selection of an upload option that instructs the camera system to confine automatic picture upload to periods without potentially increased cellular network access fees"

197. The "touch sensitive display" recitation in the present claim element refers to a structure that permits the user to make a selection. Such a selection might involve touching or finger-tapping a button, a menu option, an icon, or a similar input on the screen of the touch sensitive display. If the upload option has been selected, then the camera system is instructed to confine automatic picture upload to periods without potentially increased cellular network access fees. And, data corresponding to this selection is relayed from the touch sensitive display to the controller as data input and enables a simple TRUE (picture uploading is to be confined to periods without potentially increased cellular network access fees) or FALSE (picture uploading is not confined to periods without potentially increased cellular network access fees).

198. Recall that T-Mobile's expert Dr. Wolfe has agreed that a controller such as a computer or microprocessor is able to receive data. For instance, Dr. Wolfe has emphasized "A general purpose computer or microprocessor can…perform…functions (such as receiving data, storing data, and processing data)..." (excerpted from Wolfe Declaration, Paragraph 119, February 27, 2025) (parenthetical insertion in the original).

199. Furthermore, as also detailed above, before the priority date of the patents-in-suit, the ability and associated software, instructions, or algorithms for a touch sensitive display to relay input to a controller, and for a controller to interpret that input, existed. As evidence, please consider, for example, the following citations appearing in the specification of the patents-in-suit:

a. "Another aspect of the present invention...employs touch sensitive technology.

This technology is well known in the computer art and can be any of resistive, capacitive, RF, etc touch technology. This aspect of the present invention allows the user to interact with menus, features and functions displayed on the LCD display directly rather than through ancillary buttons or cursor control." (excerpted from '472 Patent, Column 7, Lines 17-25).

b. "Preferably, as mentioned earlier, the display is touch sensitive using any of the touch sensitive technology well understood in the art such as resistive, capacitive, RF, etc., methods mentioned above. Touch commands input by the user would be coupled back to the camera system as needed." ('472 Patent, Column 7, Lines 45-49).

c. "Still another contemplated embodiment applies the touch gesture recognition typically used with the computer-like touchpad technology to a touch sensitive display, such as the touch sensitive LCD of the camera and other devices herein disclosed that utilize an LCD display. Combining various aspects of the invention herein disclosed, such as voice recognition, touch input, gaze tracking, etc for camera control provides much more natural and human interfacing to the camera system for the control of camera menus, camera features, camera options, camera settings, commanding picture taking, enabling flash, etc." ('472 Patent, Column 14, Line 62 to Column 15, Line 6).

d. "Another aspect of the present invention incorporates touchpad technology which is typically used in laptop computers, such technology being well know[n] in the art..." (excerpted from '472 Patent, Column 2, Lines 22-25) (clarification in square brackets added here).

e. "This touchpad technology is similar to the touchpad mouse pad used on laptop computers which is also well understood in the computer art." ('472 Patent, Column 9, Lines 37-39).

f. "It is also preferred that the touchpad software implement 'tapping' recognition, also well known in the art, so that the user may...make a selection...simply by tapping the touchpad with his index finger, much the same way modern laptop driver software recognizes tapping of the touchpad as a click of the mouse button." (excerpted from '472 Patent, Column 9, Lines 46-52).

g. "Additionally, the touchpad...would be a much cheaper input gathering structure and would replace some or all of the many buttons...of the cell phone..." (excerpted from '472 Patent, Column 15, Lines 56-62).

h. "While a computer-like touchpad was used to illustrate the above preferred embodiments of this aspect of the invention, the touch sensitive input device could be comprised of other structure, for instance, the aforementioned touch-sensitive LCD display." (excerpted from '472 Patent, Column 10 Lines 15-19).

200. Dr. Wolfe agreed at his deposition that, in October of 2005, the programming existed for a touch sensitive display to determine where the screen has been touched, and translate that information for a CPU or other controller. In addition, Dr. Wolfe agreed the programming existed for a CPU or other controller to receive the translated information. In particular, Dr. Wolfe testified:

a. "A: That means that in prior art touch screens, there would be a touch screen controller which would measure signals from a touch screen sensor and generally inform a CPU about those signals by translating the measurements into a more

usable form that the CPU could interpret. Typically where and when the touch had occurred.

Q: What format was it translated to for the CPU?

A: It would vary. Typically some descriptive message. That would say something like there's been a new touch at this X coordinate and this Y coordinate." (Wolfe Deposition, Page 119, Lines 12-24).

b. "A: For touch screens that existed in 2005, they included algorithms that would format the data and present it to a host computer or a main CPU." (Wolfe Deposition, Page 122, Lines 4-7).

c. "Q: But certainly in 2005, algorithms existed to figure out where a user is touching a touch screen. Would you agree with that?

A: Those algorithms did exist. There were many different kinds…" (excerpted from Wolfe Deposition, Page 114, Lines 4-10).

d. "Q: "…I realize you could construct an algorithm, but let's say if I wanted to select from an existing algorithm, per se, I've displayed a button on my screen, did the user select it or not select it? Was that existing algorithm there and available as of 2005?

A: There were a number of existing algorithms. Depending on the specifics, you would have to choose one…" (excerpted from Wolfe Deposition, Page 115, Lines 2-19).

201. Dr. Wolfe also agreed at his deposition that, in October of 2005, touch screens were used for inputting data for a variety of devices, including handheld devices such as mobile phones and cameras. In particular, Dr. Wolfe testified:

"Q: So have you kind of amended this to say touch screens are used for inputting data in a variety of electronic devices, including handheld devices such as mobile phones and cameras. You amended it to say that in 2005. Would that be accurate?

A: I think it would."

(Wolfe Deposition, Page 118, Lines 14-20).

202. Although the exact claim language is not the same, my analysis of (f)(i) in '472 Patent Claim 1 is similarly applicable to '472 Patent Claim 5 element (f)(i) in combination with condition (1). In addition, my analysis of (f)(i) in '472 Patent Claim 1 is similarly applicable to '761 Patent Claim 1 element (f)(i).

203. In his declaration, T-Mobile's expert Dr. Wolfe asserts "Dr. Hughes also points to 'touch sensitive display, the non-volatile memory, the cellular interface.' Hughes Decl. at ¶ 49. But A POSITA would likewise recognize that these do not constitute an algorithm of any kind and this hardware is not sufficient to perform the recited functions." (Wolfe Declaration, Paragraph 120).

204. To begin, the entirety of the two sentences from my earlier Expert Declaration in the TCL matter that Dr. Wolfe is relying upon actually states "In fact, the claims specify that the touch sensitive display, the non-volatile memory, the cellular interface, and the camera system all work together with the controller to carry out the operations that [TCL] Defendants challenge as allegedly functional. (see, for example Paragraph 37 above). Thus, the plain language of the claims themselves recite the very structure (improperly cropped by [TCL] Defendants) that is connected to the elements they assert are merely functions." (both parenthetical insertions in the original) (clarifying material in square brackets added here).

205. Further, the patent claims asserted in the present matter do not require that the

"touch sensitive display, the non-volatile memory, the cellular interface" to "constitute an algorithm of any kind" all by themselves. Moreover, as described in detail elsewhere in the present declaration, the specification provides the algorithms necessary for the operations recited in the claims.

206. In his declaration, T-Mobile's expert Dr. Wolfe makes the following contentions:

a. "The patent is technologically silent as to how the 'controller' is 'configured' to perform any of the purportedly functions." (Wolfe Declaration, Paragraph 103).

b. "...an off the shelf conventional 'microprocessor' could not perform the allegedly novel functions claimed without specific programming and a specified algorithm, neither of which is identified." (excerpted from Wolfe Declaration, Paragraph 117).

c. "A general purpose computer or microprocessor can only perform limited functions (such as receiving data, storing data, and processing data) and could not perform these functions without specialized programming that is not disclosed." (Wolfe Declaration, Paragraph 119).

d. "For the 'automatically connect' functions, the specification repeats or re-states a variation of the functions claimed without identifying any structure known to a POSITA as sufficient to perform the functions...." (excerpted from Wolfe Declaration, Paragraph 110).

e. "The specification never identifies any algorithm for...automatically uploading." (excerpted from Wolfe Declaration, Paragraph 111).

f. "The asserted claims identify the functions of the controller as 'configured to' confine the automatic upload of pictures—over a cellular network—to periods of time 'without potential cellular network access fees' ('761 Patent, Claim 1) or 'without potentially

increased cellular network access fees' ('472 Patent, Claims 1 & 5); and (2) automatically connect to a picture hosting service 'without potential cellular network access fees' or 'without potentially increased cellular network access fees.' ('472 Patent at claims 1–2, 5–6; '761 Patent at claims 1–4, 16)…But the specification provides no description of how a controller would be configured to perform any of these claimed functions. There's no description of how to implement these functions recited by the claims, including how the controller would process specialized inputs to perform their functions, or how the controller would generate control signals to perform the functions." (excerpted from Wolfe Declaration, Paragraphs 124-125) (parenthetical insertions in the original).

g. "There is also no algorithm related to the function of displaying or receiving any input that instructs the camera system to confine automatic picture upload to periods without potentially increased cellular network access fees or without potential cellular network access fees. There is no disclosure concerning how the controller is configured to display or receive input that instructs the camera system to confine automatic picture uploads to periods of time without potentially increased cellular network access fees or potential cellular network access fees." (Wolfe Declaration, Paragraph 127).

207. But, as detailed elsewhere in the present declaration, a POSITA reading the excerpts from the specification reproduced elsewhere in the present declaration would understand that the algorithm provided for automatic upload is an IF-THEN conditional program. Moreover, any other algorithms that may be required are identified by reference to prior art systems.

VIII. Other Remarks

208. In his declaration, T-Mobile's expert Dr. Wolfe contends "A POSITA reviewing

the prosecution history, including the excerpts discussed above, would know that the claims were only allowed with the addition of the confining functions in element (f) in the asserted claims." (Wolfe Declaration, Paragraph 100) (parenthetical insertion in the original). Dr. Wolfe makes a similar contention when he writes "The patentee relied on the functions of the controller as the purported inventive portion of the claims to distinguish the prior art" (Wolfe Declaration, Sub-Heading Between Paragraph 94 and Paragraph 95).

209. As an initial matter, in spite of Dr. Wolfe's use of the words "function" and "functions" in his contentions, please notice that none of the asserted patent claims ever recite the words "function" or "functional". Further, in my opinion, and as explained in detail elsewhere in this present declaration, none of terms appearing in the asserted claims are means-plus-function.

210. Next, note that Dr. Wolfe includes the following text in his declaration at Paragraph 99.

> "None of the references of record discloses or suggests 'an upload option that instructs the camera system to confine automatic picture upload to periods without potentially increased cellular network access fees.' ***Furthermore, none of the references describes, as a condition for upload, that the controller determines 'the upload is allowed because the system is within one of the periods without potentially increased cellular network access fees, as determined using data from the cellular interface' and that the controller automatically enables upload of designated photos to the picture hosting service when this condition and the other conditions are met.*** Thus, all of the pending claims are in condition for allowance for at least the same reasons that the Examiner recently issued the claims of the '116 and '761 patents in the family."
>
> (Wolfe Declaration, Paragraph 99) (bold italics appear in Wolfe Declaration)

211. Notice again that, in spite of Dr. Wolfe's use of the words "function" and "functions" in his contentions, neither of those words appear in the citation that Dr. Wolfe relies upon, and that he elects to include in Paragraph 99 of his declaration.

212. Further notice that specific hardware structures, including a controller and a cellular interface, are expressly named in the material that Dr. Wolfe includes in his Paragraph 99. And, the controller is performing operations that include hardware structures, such as the cellular interface.

213. Notice also that the citation relied upon by Dr. Wolfe actually reveals, for example, what the data inputs are, where the inputs came from, where the data is going, how the data gets to its destination, and what the data is being used for.

214. Notice also that the citation relied upon by Dr. Wolfe reproduces in bold and italics a "condition for upload" and "that the controller automatically enables upload of designated photos to the picture hosting service when this condition and the other conditions are met". Accordingly, the citation cited by Dr. Wolfe actually shows that the patentee emphasized the IF-THEN conditional structure of the claim (discussed elsewhere in the present declaration) as an important distinction over the art.

215. In his declaration, T-Mobile's expert Dr. Wolfe contends "A person of ordinary skill in the art would recognize these functions in element (f) of the asserted claims as functions because they are actions the controller must be programmed to perform." (Wolfe Declaration, Paragraph 90) (parenthetical insertion in the original). However, please notice that none of the asserted patent claims ever recite the words "function" or "functional". Further, in my opinion, and as explained in detail elsewhere in this present declaration, none of the terms appearing in the asserted claims are means-plus-function.

216. In his declaration, T-Mobile's expert Dr. Wolfe asserts "But a POSITA would know that the recited touchpad technology is not sufficient to perform the functions that CEV identified as the point of novelty for its alleged invention." (Wolfe Declaration, Paragraph 128). But, CEV has never contended that touchpad technology all by itself is the "point of novelty for its alleged invention", and Dr. Wolfe does not provide a specific reference as to where CEV has done so.

217. In his declaration, T-Mobile's expert Dr. Wolfe makes the following statements:

a. "...the alleged invention required the device to make a determination whether there would be increased costs for upload." (excerpted from Wolfe Declaration, Paragraph 114).

b. "The specification never identifies any algorithm for determining the status of network charges..." (excerpted from Wolfe Declaration, Paragraph 111).

218. To begin the analysis, please recall that the inventions in the patents-in-suit are defined by the patent claims. As such, it is instructive to look at the express language of the asserted claims germane to Dr. Wolf's statement. So, please recall these recitations in the respectively asserted claims:

a. "...a user selection of an upload option that instructs the camera system to confine automatic picture upload to periods without potentially increased cellular network access fees..." (excerpted from '472 Patent Claim 1).

b. "...a user-selectable input that instructs the camera system to confine automatic picture upload to periods without potentially increased cellular network access fees..." (excerpted from '472 Patent Claim 5).

c. "...a user selection of an upload option that instructs the device to confine automatic

picture upload to periods without potential cellular network access fees...” (excerpted from ’761 Patent Claim 1).

219. It is clear from the express language reproduced above that it is not necessary for the camera system “to make a determination whether there would be increased costs for upload”, as incorrectly argued by Dr. Wolfe. Instead, these respective limitations merely require that the user make a selection telling the camera system to avoid uploading if there is any possibility of incurring a fee above and beyond the normal data upload fee. As one example, and as discussed in detail elsewhere in this present declaration, data roaming comprises a period where a user might potentially incur a fee above and beyond the normal data upload fee. The system is not required to determine whether the individual user is actually charged a fee or is not charged a fee for the upload. Thus, the claim does not require for “the device to make a determination whether there would be increased costs for upload” or “determine[e] the status of network charges”, as incorrectly contended by Dr. Wolfe.

Signed under penalty of perjury this 20th day of March, 2025.

By: David W. Hughes

David W. Hughes

EXHIBIT 1 TO THE EXPERT DECLARATION OF DAVID W. HUGHES – Dr. Hughes C.V.

BIOGRAPHICAL SKETCH

David W. Hughes
Hughes & Associates
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Huntsville, AL 35810
256/945-7348 (voice)
DWHughes@aol.com (e-mail)

Education

Bachelor Of Electrical Engineering
Georgia Institute Of Technology, 1975

Master Of Science, Electrical Engineering
Georgia Institute Of Technology, 1976

Doctor Of Philosophy, Electrical Engineering
Georgia Institute Of Technology, 1980

Employment History

Latrobe Steel Company - Latrobe, Pennsylvania
Laborer (Summers), 1972-1974

Georgia Institute Of Technology - Atlanta, Georgia
Graduate Research Assistant, 1975-1980

Motorola Semiconductor Products Sector - Mesa, Arizona
Principal Staff Engineer, 1980-1985

Georgia Tech Research Institute - Atlanta, Georgia
Senior Research Engineer, 1985-1991

McDonald, Withers & Hughes, Inc. - Atlanta, Georgia
Principal, 1991-1994

McDonald & Hughes, Inc. - Atlanta, Georgia
Principal, 1994-1995

Hughes & Associates - Atlanta, Georgia; Huntsville, Alabama
President, 1995-Present

Experience Summary

Is presently the founding president of an engineering consulting and intellectual property firm which specializes in proprietary technologies. Assists the client in creating, protecting and positioning his technology assets for maximum economic benefit. Works extensively with patents and other forms of intellectual property. Improves the interface between patent attorneys, technologists and business people. Serves as an expert in patent and product litigation.

While at the Georgia Tech Research Institute, conducted research on the design, fabrication and characterization of gallium arsenide integrated devices.

Engineered Motorola's oxide-isolated, high voltage bipolar process. Built the world's first 100-mm, dielectrically-isolated production circuits. Helped design and implement new process control test dice for linear bipolar flows. Compared methodologies for sidewall isolating epitaxial islands. Supervised the design of a vehicle to measure stresses induced in silicon chips. Worked on power transistors for use with a bimos flow. Developed thin film resistors for use with data conversion products. Submitted 28 patent disclosures concerned with semiconductors and numerous other disclosures discussing complementary technologies. Holds the three fundamental patents on Motorola's chromium-silicon thin film manufacturing process.

While a graduate student at Georgia Tech, was engaged in extensive contracting with the United States Department Of Energy. Developed source of multiply-charged atmospheric ions. Invented advanced thermionic ion sources. Measured electron impact ionization cross sections. Supervised undergraduate and graduate laboratory assistants. Prepared numerous technical reports and presentations.

Current Fields Of Interest

Creation and positioning of intellectual properties in order to yield the maximum economic return to the client.

Serving as an expert in patent, product and trade secret litigation.

Selected Clients

Amoco

Avantek

Bailey Controls

Becton Dickinson

Broadcom

Calcomp

Cincinnati Electronics Corporation

Control Data Corporation

Delco

Dionex

Dow Chemical

Emory University

ETA Systems

General Electric

GTE

Hamilton Standard

Harris Corporation

Hewlett Packard

Honeywell

Hughes Aircraft

IBM

ITT

Lemelson Foundation

Lexmark International

Litton

Loral

Marlow Industries

Maxtor Corporation

Medtronic Micro-Rel

Milliken Chemical

Motorola

Murata

Northern Telecom

Northrop Grumman

Raychem Corporation

Rockwell International Corporation

Rohm

Semtech Corporation

Spectra-Physics

The Weather Channel

TRW

United Technologies Corporation

Unitrode

Registrations, Professional Affiliations And Special Honors

Engineer-In-Training Certification, 1975

Sigma Xi Award For The Outstanding Dissertation In Engineering, 1980

Motorola Engineering Achievement Award, 1981

Motorola Award Of Excellence, June 1981

Motorola Award Of Excellence, January 1983

Motorola Award Of Excellence, October 1983

Senior Member, Institute Of Electrical And Electronics Engineers

Member, Eta Kappa Nu

Member, Phi Kappa Phi

Member, Sigma Xi

Member, Tau Beta Pi

Listed In *Who's Who Of American Inventors*

Listed In *Who's Who Executive And Professional Directory*

Listed In *Who's Who Among Executives & Professionals*

Listed In *Who's Who Of Professionals*

Listed In *Who's Who In Science And Engineering*

Listed In *Who's Who In The South And Southwest*

Listed In *Who's Who Registry Of Business Leaders*

Issued Patents

1. "Chromium-Silicon-Nitrogen Resistor Material", U.S. Patent 4,392,992, July 12, 1983, with W.M. Paulson

2. "Thin Film Resistor Material And Method", U.S. Patent 4,510,178, April 9, 1985, with W.M. Paulson

3. "Chromium-Silicon-Nitrogen Thin Film Resistor And Apparatus", U.S. Patent 4,591,821, May 27, 1986, with W.M. Paulson

4. "Method For Altering Characteristics Of Junction Semiconductor Devices", U.S. Patent 4,820,657, April 11, 1989, with R.K. Feeney

5. "Method For Altering Characteristics Of Active Semiconductor Devices", U.S. Patent 4,874,711, October 17, 1989, with R.K. Feeney and D.R. Hertling

6. "Personal Use Syringe Dispensing And Collecting System", U.S. Patent 5,152,394, October 6, 1992

7. "Medical Wastes Disposal System", U.S. Patent 5,163,375, November 17, 1992, with L.A. Withers

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9. "Personal Use Syringe Dispensing And Collecting System", U.S. Patent 5,245,117, September 14, 1993, with L.A. Withers

10. "Personal Use Syringe Collecting And Disposing System", U.S. Patent 5,259,501, November 9, 1993, with L.A. Withers

11. "Contaminated Wastes Disposal System", U.S. Patent 5,323,719, June 28, 1994, with L.A. Withers

12. "Burnable Wastes Collector With Liquid Absorber And Identifier", U.S. Patent 5,385,105, January 31, 1995, with L.A. Withers

13. "Contaminated Wastes Disposal System", Australian Patent 656597, June 27, 1995, with L.A. Withers

14. "Disposable Medical Wastes Collector With Liquid Absorber", U.S. Patent 5,458,072, October 17, 1995, with L.A. Withers

Books And Portions Of Books

1. "Electrostatic Discharge", in *Monolithic Microwave Integrated Circuits: Technology And Design*, Artech House, Norwood, MA, 1989, R. Goyal, editor

2. "Radiation Hardening", in *Monolithic Microwave Integrated Circuits: Technology And Design*, Artech House, Norwood, MA, 1989, R. Goyal, editor

3. *The Cave Art Of Tom Culverwell*, National Speleological Society, Huntsville, AL, December 22, 2006

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5. *Lew Bicking: A Legendary American Cave Explorer*, National Speleological Society, Huntsville, AL, June 2, 2011

6. *Dogwood City Grotto: 50th Anniversary*, Dogwood City Grotto Of The National Speleological Society, Atlanta, GA, July 11, 2013

7. "The Visionaries—Setting The Stage For The Greatest Space Generation", in *The Greatest Space Generation*, Acclaim Press, Morley, MO, June 13, 2016, E. Buckbee, editor

8. "NSS Luminary Series", in *Diamond Jubilee Of The National Speleological Society: 75 Years Of Organized American Caving*, National Speleological Society, Huntsville, AL, July 2016, P. Damon, Senior

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10. *Hidden Wilderness: A Celebration Of The Southeastern Cave Conservancy*, Southeastern Cave Conservancy, Signal Mountain, TN, September 12, 2023

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1. "An Effective Error Preventer", *QST*, December 1971

2. "The Excitation And Ionization Of Ions By Electron Impact", Technical Progress Report To The United States Energy Research And Development Administration, Covering The Period 1 September 1975 To 31 May 1976, with R.K. Feeney, D.W. Baggett and Others

3. "A Penning-Type Ion Source For Collision Experiments", *Conference Record–Abstracts Of The I.E.E.E. 1977 International Conference On Plasma Science*, with R.K. Feeney and W.E. Sayle

4. "The Excitation And Ionization Of Ions By Electron Impact", Technical Progress Report To The United States Energy Research And Development Administration, Covering The Period 1 September 1976 To 31 May 1977, with R.K. Feeney, D.W. Baggett and Others

5. "Absolute Experimental Cross Sections For The Electron Impact Ionization Of Rb^+ Ions For Use In Ion Beam Probe Calibration", *Conference Record-Abstracts Of The I.E.E.E. 1978 International Conference On Plasma Science*, with R.K. Feeney and W.E. Sayle

6. "The Excitation And Ionization Of Ions By Electron Impact", Technical Progress Report To The United States Department Of Energy, Covering The Period 1 September 1977 To 31 May 1978, with R.K. Feeney, G.B. Hoak and Others

7. "Electron Impact Single And Multiple Ionization Cross Section Of Alkali Ions", Minutes Of The Second Conference On Atomic Processes In High Temperature Plasmas, *Bulletin Of The American Physical Society*, May/June 1979, with R.K. Feeney and W.E. Sayle

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9. "A Thermionic Ion Source For Use In Collision Experiments", *Conference Record-Abstracts Of The I.E.E.E. 1979 International Conference On Plasma Science*, with R.K. Feeney, A.T. Chapman and D.C. Priester

10. "Absolute Experimental Cross Sections For The Electron Impact Ionization Of Rubidium", Technical Summary Report To The United States Department Of Energy, 31 March 1980, with R.K. Feeney

11. "The Excitation And Ionization Of Ions By Electron Impact", Final Technical Report To The United States Department Of Energy, Covering The Period 1 September 1969 To 31 March 1980, with R.K. Feeney and J.W. Hooper

12. "Absolute Experimental Cross Sections For The Electron Impact Ionization Of Rubidium", *Dissertation Abstracts International*, August 1980

13. "An Aluminosilicate-Composite Type Source Of Alkali Ions", *Review Of Scientific Instruments*, November 1980, with R.K. Feeney and D.N. Hill

14. "Absolute Experimental Cross Sections For The Electron Impact Multiple Ionization Of Singly Charged Rubidium Ions", *Physical Review A*, May 1981, with R.K. Feeney

15. "Absolute Experimental Cross Sections For The Electron Impact Single, Double, Triple And Quadruple Ionization Of Cs^+ Ions", *Journal Of Applied Physics,* August 1982, with D.R. Hertling, R.K. Feeney and W.E. Sayle

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18. "Low Noise GaAs Field Effect Transistors For Monolithic Microwave Integrated Circuits", *Bulletin Of The American Physical Society*, January 1986, with H.M. Harris

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20. "An Equivalent Circuit For A 70 Mil Microstrip Package", *Microwave Journal*, August 1986, with H.M. Harris and C.T. Rucker

21. "Calibrating RF Test Fixtures", *RF Design*, September 1986, with C.T. Rucker, R.K. Feeney and D.R. Hertling

22. "GaAs Monolithic IC Design And Fabrication", Final Report To Hughes Aircraft Company, Covering The Period 3 September 1985 To 15 December 1986, with H.M. Harris, C.T. Rucker and R.K. Feeney

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33. "An Equivalent Circuit For A Microwave Surface Mount Package", Technical Summary Report To Rome Air Development Center, January 1989, with D.M. Jackson

34. "Practical Approach Accurately Models Microwave Packages", *Microwaves & RF*, May 1989, with D.M. Jackson

35. "T/R Modules For Phased-Array Radar: Status And Recommendations", (Invited), RADC RF Technology Panel Session, Atlanta, Georgia, May 1989

36. "Designing Radiation-Hard Gallium Arsenide Integrated Circuits", *Proceedings Of The 1989 Advanced Microelectronics Technology Qualification, Reliability And Logistics Workshop*, August 1989

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40. "MOS Trimmer", *Design News*, March 12, 1990

41. "Intentional Overstress Trimming Of Bipolar Semiconductors", *Proceedings Of Test Technology Symposium III*, March 1990, with R.K. Feeney

42. "Oxide-Isolated Integrated Circuits For High Frequency Applications", *RF Design: 1990/1991 Directory*, September 1990

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44. "International Licensing At Universities", *Les Nouvelles*, December 1990, with A. Withers

45. "The F^3 System: A Start To Time Management", *IEEE Professional Communications Society Newsletter*, January 1991

46. "GaAs MMICs: Some Lessons From Silicon", *Journal Of Electronic Defense*, March 1991

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48. "UHF Power Transistors For Use In Military Electronics Systems", *RF Design*, June 1991

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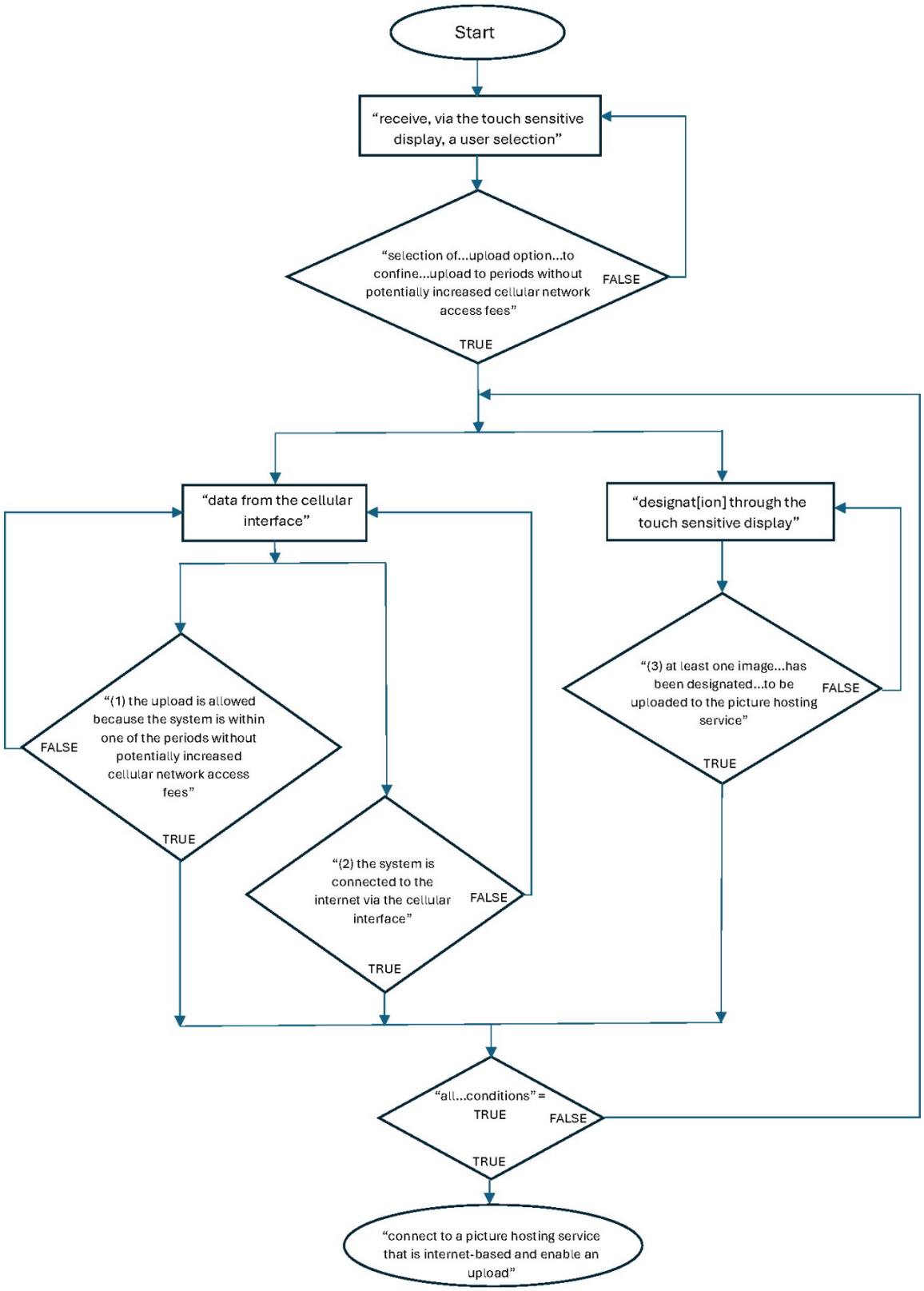
50. "An Equivalent Circuit For A Microwave Surface Mount Package," *Microwave Journal*, October 1991, with D.M. Jackson

51. "Advanced III-V Materials For Microwave And Millimeter Wave Integrated Circuits," *Proceedings Of The Second Workshop On Electronics And Electro-Optic Materials For Tactical And Strategic Applications*, October 1991, with H.M. Harris and A. Torabi

EXHIBIT 2: Flowchart of U.S. Patent No. 11,153,472 Claim 1 Element (f)



"(f) a controller...configured to (i) receive, via the touch sensitive display, a user selection of an upload option that instructs the camera system to confine automatic picture upload to periods without potentially increased cellular network access fees;"

"(f) a controller...configured to...(ii) automatically connect to a picture hosting service that is internet-based and enable an upload to the picture hosting service, over the internet and via the cellular interface, of a group of image sensor-captured pictures stored in the local memory, during any period detected by the controller in which all three of the following conditions are met: (1) the upload is allowed because the system is within one of the periods without potentially increased cellular network access fees, as determined using data from the cellular interface, (2) the system is connected to the internet via the cellular interface; and (3) at least one image sensor-captured picture stored in the local memory has been designated through the touch sensitive display as part of the group of pictures to be uploaded to the picture hosting service."